

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

Civil Action No. 2:05-cv-00443-TJW

COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Defendants.

**PLAINTIFF REMBRANDT TECHNOLOGIES, LP'S
REPLY BRIEF REGARDING CLAIM CONSTRUCTION**

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I. INTRODUCTION

Comcast's claim construction Response (Docket No. 121) includes a number of persistent errors, even from its opening words. For example, in its introduction, Comcast suggests that interpreting the claims more broadly than preferred embodiments – in other words, as they are written – is somehow improper, because the patents are being applied to later-developed cable technology in this case. (Response at 1.) The law is clear, however, that patents are frequently construed more broadly than the preferred embodiments. *Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994) (holding that “particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments”). This is far different from construing the claims in a manner that is inconsistent with the specification, or, even worse, in a manner that excludes the preferred embodiments from the claims. Such constructions – including many proposed by Comcast – are plainly improper. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (a construction that would exclude a preferred embodiment is “rarely, if ever, correct and would require highly persuasive evidentiary support”).

Comcast makes other fundamental errors as well. While its Response includes a number of purported “incontrovertible rules” of claim construction (several of which Comcast proceeds to violate), the list conveniently omits several well-known principles:

- Claims should not be limited to the preferred embodiment. *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1328 (Fed. Cir. 2002) (cautioning against limiting the claimed invention to a preferred embodiment in the specification).
- Different language in claims generally leads to different meanings. *CAE Screenplates, Inc. v. Heinrich Fielder GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings.”)
- Extrinsic evidence should be rejected where it is inconsistent with the patent claims or specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) (*en banc*) (stating that a court should discount extrinsic evidence that is at odds with the intrinsic evidence).

- Expert testimony on the meaning of claim terms should be viewed with scrutiny. *Phillips*, 415 F.3d at 1318-1319 (noting the unreliability of expert testimony as compared to intrinsic evidence).

Comcast's Response violates these rules over and over again and further shows why Rembrandt's constructions are the right ones.¹

II. DISCUSSION

A. U.S. Patent No. 5,719,858

1. time-division multiplexed bus (claims 1, 7, 9, 11, 15, 20)

Comcast makes three separate arguments regarding the TDM bus limitation, none of which has any merit. Comcast first argues that Rembrandt does not further define the term "bus," but Comcast itself states that "*it is understood* that a bus is a group of (one or more) conductors shared by several users (*i.e.*, transmitting and receiving sources)." (Response at 3.)² There is simply no need to define this easily understood term using more words, particularly when one of those words – conductor – may be confusing and incorrect. Comcast may attempt to argue, for example, that the term "conductor" does not include a fiber optic connection, but fiber optics were well known in 1995 to communicate data.

Second, Comcast asserts that a TDM bus "requires that the transmission sequence be defined" (Response at 3.) This statement, like Comcast's construction, directly contradicts the '858 patent specification. In the preferred embodiment there is *no defined transmission sequence* for the data sources which use the TDM bus. This is shown best in Figure 6 of the '858 patent, in which Module 6 follows Module 2, skipping over Modules 3, 4 and 5. Later on this order could change, depending on when each Module has data to send. (Ex. 25 at 62:21-64:11; *see also* 58:16-59:6.)³

¹ It should be noted that, due to space constraints, Rembrandt does not delineate every error in Comcast's brief, nor does Rembrandt even address all claim limitations. No such omission is intended to suggest agreement with Comcast's position; Rembrandt rests on its opening brief and will be prepared to address such issues, if the Court wishes, at the upcoming hearing.

² Unless otherwise indicated, emphasis in this Reply has been added.

³ Exhibits 1-24 refer to exhibits attached to Rembrandt's Opening Claim Construction Brief (Docket No. 119). Exhibits 25-28 are attached to this Reply Brief. Exhibits 7 and 8 to Rembrandt's Opening Claim Construction Brief include rough transcripts of the depositions of Drs. Curtis Siller and Harry Bims. Exhibits 25 and 26 to this Reply include the final

Third, Comcast tries to avoid this problem by arguing that in the '858 patent, over repeated frames, consistent portions of bandwidth are allocated collectively to the packet sources and synchronous sources. (Response at 4.) In other words, according to Comcast, because there is some repetition to how different groups of sources access the bus, the '858 patent specification is consistent with Comcast's construction. Even if Comcast's characterization of the '858 patent were true, the argument fails to cure the problems in Comcast's construction. That construction requires that "each user," not a group of users, access the bus in a defined, repeated sequence. In light of this proposed language, it is inexplicable how Comcast asserts that its construction "does not even relate to what data source is allowed to transmit at a particular time." (*Id.* at 4.) This statement is belied by its own proposed construction.

Comcast's construction would read out the preferred embodiment of the '858 patent, and should be rejected.

**2. packet data (claims 1, 7, 9, 11, 15 and 20);
synchronous data (claims 7, 9, 11)**

Comcast attempts to draw the line between packet and synchronous data according to the format of the data, *i.e.* whether it includes header information or not. This forces Comcast to (1) ignore an express definition within the '858 patent, and (2) ignore its own expert's Declaration.

As set forth in Rembrandt's opening brief and conceded by Comcast, the '858 patent expressly defines packet data as "variable-bit-rate" data. (Ex. 1 at 1:9-10; Response at 5.) This is the construction proposed by Rembrandt, and there is nothing in the specification to the contrary. Comcast wrongly suggests that Rembrandt seeks to "limit" the term beyond this definition. (Response at 5.) Rembrandt simply proposes that the proper construction is the express definition set out in the specification.

Comcast's arguments regarding "synchronous data" are belied by its own expert. Dr. Siller states in his Declaration that "synchronous" refers to "a mode of transmission in which the sending and receiving equipment are operating continuously at the same rate and are maintained

versions of each of these transcripts, including pages cited in Rembrandt's Opening Claim Construction Brief.

in a desired phase relationship.” (Siller Decl. at ¶ 23.) This description makes no reference to the format of the data. Indeed, Comcast admits that synchronous data “can be sent in packets.” (Response at 5.) There is no basis in the patent or otherwise to limit synchronous data to data “not transmitted in packets,” as Comcast proposes.

Comcast’s reference to the prosecution history wrongly cites the Examiner’s description of a prior art reference, not the ’858 patent invention. (Comcast Ex. 4 at 2-3.) Moreover, the Examiner’s statements are not a basis for contradicting an express definition within the specification. *Sorensen v. Int’l Trade Comm’n*, 427 F.3d 1375, 1379 (Fed. Cir. 2005) (noting that “the statements of an examiner will not necessarily limit a claim”).

**3. distributed packet manager (claims 1, 7);
allocate access to the allotted bandwidth among said packet data
sources [and corresponding limitations] (claims 1, 7, 15, 20)**

Comcast would improperly require the “distributed packet manager” to perform every function for placing packet data on the bus. This once again reads out a preferred embodiment, because the ’858 patent itself describes that the central “network access module” or “NAM” is what reserves a portion of bus bandwidth for the packet sources. (Ex. 1 at 5:11-13.) The ’858 patent does not demand the complete elimination of all central control, as Comcast proposes. (Comcast’s construction of “network access module” is also incorrect for this same reason.)

Comcast also seeks to read into these limitations a requirement of preventing packet collisions, but even Comcast’s brief shows that such a construction would limit the patent to the preferred embodiment, namely “a specific solution . . . whereby only one packet source ‘captures’ permission to use the MAPC at a time.” (Response at 8.) This “specific solution” is the preferred method of access, using “packet request” and “packet hold” signals, described at columns 7 to 10. Comcast cites no support that justifies limiting the patent to this embodiment. This is particularly true in light of known methods of time division multiplexing that allow for packet collisions. (Ex. 25 at 92:22-93:14.)

Comcast’s attempts to avoid the doctrine of claim differentiation have no merit. Its cases are inapplicable, because they relate to situations where claim differentiation would lead to a

construction that was incompatible with the specification and would render a claim term “nearly meaningless.” *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1379 (Fed. Cir. 2006); *Hormone Research Found. v. Genentech, Inc.*, 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990). That is not the case here. Moreover, the ’858 patent includes dependent claims that recite the “specific solution” for allocating access which Comcast seeks to import into the independent claims. (*See, e.g.*, claim 2, reciting the “packet request” and “packet hold” signals.) Comcast’s efforts to effectively read these dependent limitations into broader independent claims should be rejected, as set forth in Comcast’s own cited case law. *Curtiss-Wright*, 438 F.3d at 1380 (observing that “reading an additional limitation from a dependent claim into an independent claim would not only make that additional limitation superfluous, it might render the dependent claim invalid”).

B. U.S. Patent No. 4,937,819

1. application program[s] (claims 1, 14)

Having failed initially to cite any relevant evidence in support of its construction for “application program,” Comcast now cites to two new extrinsic sources. One of the sources (the IEEE dictionary) is five years late, and the other source (Newton’s Telecom) actually supports Rembrandt’s construction: “APPLICATION[:] A software program that carries out some useful task.” (Comcast Ex. 13.)

Comcast’s arguments also mischaracterize the intrinsic record. Contrary to Comcast’s assertion, the prosecution history *broadened* the phrase “host application” to “application program,” so that the program in question no longer needed to be running at a central host. This is clear from the following Office Action, after the claim was broadened, in which the Examiner refers to using a “remote unit to execute [an] application program.” (Ex. 27 at 4.) Also contrary to Comcast’s suggestion, there is no inconsistency between Rembrandt’s construction and the patent specification, because there is no requirement that every single program have an associated channel. The patent claims include the phrase “comprising,” and so can accommodate additional elements such as extra programs that do not require any data

transmission. *CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005) (“The transitional term ‘comprising’ . . . is inclusive or open-ended and does not exclude additional, unrecited elements or method steps.”).

Finally, Comcast’s selective citation of inventor testimony ignores the general statement by the inventor that his invention is “transparent to the application.” (Ex. 23 at 58:6-7.)

**2. time slot assigned to each of said application programs (claim 1);
dividing a period of a clock . . . (claim 14)**

The primary dispute regarding these elements is whether time slots can be assigned dynamically. Comcast’s efforts to read out this capability are contrary to the plain teachings of the patent. Although one disclosed method of assigning time slots is to do so at initialization, the patent discloses another method by which remote units request additional time slots during transmission, and the time slots are assigned at that time.

Comcast concedes all of the patent disclosure regarding this second method (Response at 12), but somehow seeks to avoid calling this procedure an “assignment” of time slots. This strained interpretation makes no sense. In fact, *the ’819 patent itself refers to this dynamic allocation as an “assignment” of time slots*. Figure 8 shows a flow chart of the preferred dynamic allocation method, in which a remote unit makes a “reservation request” for additional time slots, and they are granted by the master unit. (Ex. 2 at Fig. 8.) The notation on the right hand side of Figure 8 refers to the grant as “**Assignment** of Transmission Period for Reservation Requests.” Comcast’s efforts to construe the claim so as to exclude this disclosure should be rejected.

Comcast also wishes to read in further limitations regarding whether information is “packetized,” but this overstates the arguments made during prosecution. A disclaimer in prosecution must be “clear and unmistakable.” *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005). Where as here the patentee merely differentiated prior art on a number of exemplary bases, the argument does not rise to the level of a disclaimer. *Gemstar-TV Guide Int’l, Inc. v. Int’l Trade Comm’n*, 383 F.3d 1352, 1375 (Fed. Cir. 2004) (“Gemstar’s

statements in the prosecution history do not indicate a disavowal or disclaimer of claim scope . . . but merely provide an example to illustrate differences between the invention and the prior art.”).

3. master network timing means . . . (claim 1)

Comcast mistakenly asserts that the “master network timing means” limitation recites a function, but in fact it merely recites a “wherein” clause that defines some features of how bandwidth is partitioned in the ’819 patent. Even if the “wherein” clause is interpreted as functional language, the patent specification does not associate it with the master network timing means. Comcast itself concedes that a user can set up these partitions, not the master network timing means. (Response at 15.) Accordingly, this limitation does not meet the requirements for the application of 35 U.S.C. § 112, ¶ 6.

Comcast belatedly raises an indefiniteness argument premised on the fact that its purported “function” is not associated with a purported “algorithm.” (Response at 14, n. 11.) Citing Rembrandt’s expert Dr. V. Thomas Rhyne, Comcast falsely asserts that the “parties agree that the network timing and control processor 12 performs the claimed functions.” (*Id.* at 14.) Rembrandt does not agree, and Dr. Rhyne’s declaration says no such thing. Moreover, Comcast’s indefiniteness argument was never raised in its Invalidity Contentions or previously in claim construction disclosures, and should be rejected. If anything, Comcast’s admission that its purported “function” is not associated with a purported “algorithm” only confirms that § 112, ¶ 6 should not apply.

As set forth in Rembrandt’s opening Brief, the patent specification discloses a clock that keeps network timing, and this is the only construction needed to capture the meaning of a “master network timing means.”

4. ranging means . . . (claim 1)

In its Response, Comcast virtually ignores the essential problem with its proposed construction. Specifically, the function Comcast seeks to associate with the “ranging means” is in fact associated with the master unit, not the ranging means. This function can be performed by other components of the master unit. Comcast’s only response is a conclusory footnote, in

which it notes that the ranging means is within the master unit. (Response at 15.) This statement does nothing to correlate any function with the “ranging means” itself, as would be required for the application of § 112, ¶ 6. Comcast’s expert conceded this very point in deposition. (Ex. 25 at 181:23-182:14.)

**5. reservation request generator and processor (claim 2);
priority bit (claim 11)**

These limitations are further examples of Comcast seeking to restrict the claims to a single preferred embodiment described in the specification. Such restrictions are improper, and should be rejected. *Teleflex*, 299 F.3d at 1328 (cautioning against limiting the claimed invention to a preferred embodiment in the specification).

C. U.S. Patent No. 5,852,631

Only two substantial disputes among the parties remain with respect to the ’631 patent: “link layer” and two means-plus-function terms.⁴

1. link layer (claims 1, 3, 4, 6, 8, 9, and 10)

a. Rembrandt’s Construction Is the Most Faithful to the Intrinsic Evidence

The ’631 patent refers to “error correction” forty-eight times in the context of a link layer protocol. (Ex. 3 at 1:53; 2:42, 46, 47, & 49; 4:28; 6:59, 62, 64 & 65; 7:29, 39, 49 & 63; 11: 26, 32, 35, 43, 60, 64 & 67; 12: 1, 3, 5, 10, 11, 24, 28, 30, 43, 51, 55 & 58; 13: 2, 4, 21, 22, 25, 27, 31, 37, 38 & 39; 14: 3, 43, 48 & 67). In not one of these instances does the ’631 patent limit the *kind* of error correction that is to be accomplished by the link layer. Comcast nonetheless seeks to restrict the scope of the ’631 patent to link layer protocols utilizing frame retransmission, on the basis of an out-of-context snippet from a single sentence in the ’631 patent.

When read in full, however, this sentence provides no support for Comcast’s position:

⁴ With respect to the term “negotiated physical layer modulation,” Rembrandt does not dispute that a negotiation requires an exchange of information, nor that the negotiation must take place at run time. These concepts are already inherent in Rembrandt’s proposed construction (requiring that the modems “*agree* on a common supported physical layer modulation”).

The data link layer is the second lowest layer *of the OSI seven layer model* and is provided to perform error checking functions as well as retransmitting frames that are not received correctly.

(Ex. 3 at 1:11-14.) This sentence does not purport to define the link layer, but merely incorporates – and partially characterizes – a pre-existing concept of “link layer” defined in the OSI seven layer model. The seminal Zimmerman article introducing this model broadly defines the link layer as encompassing those “specific techniques to be used in order to transmit data between systems despite a relatively high error rate” (Ex. 16 at 429.) Nothing in the Zimmerman article limits link layer error correction to a particular type, such as frame retransmission. To the contrary, Zimmerman explicitly recognizes that the types of error control procedures that may be found in the link layer may change over time. “It must also be recognized that new physical communications media . . . will require quite different data-link control procedures [from those already in standard use].” (*Id.* at 429.)

The patent claims themselves support this understanding. Claim 1 recites a “method for establishing a link layer connection.” (Ex. 3 at 14:25.) Claim 3 depends from claim 1 and further requires that “said link layer connection is an error-correcting protocol.” (Ex. 3 at 14:42-43.) Yet Comcast would have this Court rule that claim 1 is already limited to error-correcting protocols *that operate through frame retransmission* – in other words, that independent claim 1 is narrower than dependent claim 3. Such a construction is impermissible. *See* 35 U.S.C. § 112, ¶ 4 (“a claim in dependent form shall . . . specify a further limitation of the subject matter claimed”); *Lampi Corp. v. Am. Power Prods., Inc.*, 228 F.3d 1365, 1376 (Fed. Cir. 2000) (construing an independent claim to ensure that a dependent claim was not of broader scope).

In short, no one disputes that, where used, frame retransmission is part of the link layer. But nothing in Zimmerman or the ’631 patent suggests that frame retransmission is a *necessary* feature of the patent.

b. Error Correction Is a Link Layer Feature

Comcast maintains that because the V.34 standard includes a protocol for establishing a physical layer connection, and also includes trellis encoding, that trellis encoding must be part of

the physical layer. (Response at 22.) This argument is may easily be dismissed because *Comcast's own expert* testified that protocols like the V.34 standard include functionality in multiple layers: "There are many examples of communications protocol standards that encompass multiple layers in the OSI protocol model." (Ex. 26 at 93:17-19.) Comcast's expert also explained that "it's generally understood as to which functions go within which layer of the OSI protocol model." (*Id.* at 94:7-9.)

In view of the repeated statements in the '631 patent and the Zimmerman article that error correction is a function of the link layer, this testimony confirms that the V.34 protocol spans multiple layers of the OSI model. While some of the V.34 protocol's functionality relates to the physical layer, the trellis-encoding functionality, which pertains to error correction, exists within the link layer.

c. The Extrinsic Evidence Supports Rembrandt's Construction

Comcast's citations to treatises and dictionary definitions to buttress its link layer argument are unavailing. While as noted above frame retransmission was one known method of implementing link layer error correction, this was clearly not the only known method. Comcast acknowledges that the Lim article (Ex. 20), published only shortly after the filing date of the '631 patent, utilizes a form of error correction in the link layer that does not use frame retransmission. (Response at 23; Bims Decl. ¶ 22.) Even a patent issued to Comcast's own expert clearly states that error correction in the link layer can be achieved through Reed-Solomon coding, as opposed to frame retransmission. (*See* Ex. 28 at 8:6-9 ("In one embodiment, data link layer 408 is implemented . . . with Reed-Solomon decoding"))

2. Comcast's Indefiniteness Argument Violates the Local Rules and Is Contradicted by Its Own Expert

In Comcast's opening claim construction brief, Comcast argues for the first time that two means-plus-function terms in the '631 patent⁵ are invalid as indefinite. Comcast's argument

⁵ "means for establishing said link layer connection based upon the negotiated physical layer connection" and "means for presetting said link layer parameters based on the negotiated physical layer modulation."

comes too late. P.R. 3-3(d) requires that Comcast disclose any indefiniteness argument in its Preliminary Invalidity Contentions, but no such disclosure was made. Nor did Comcast contend that these terms were indefinite when the parties filed their Amended Joint Claim Construction Statement. (*See* Docket No. 112 at A-15 – A-17.) Nor did Comcast’s expert opine that these terms were indefinite. (Ex. 26 at 241:15-242:3; 242:18-24; *see also id.* at 214:7-13.) Because Comcast can cite no evidence supporting its indefiniteness argument, and because Comcast provided no notice to Rembrandt of its position, the Court should not entertain Comcast’s late contentions now and should adopt Rembrandt’s proposed construction.

D. U.S. Patent No. 5,243,627

Comcast’s constructions of the ’627 patent exemplify one of the basic methodological defects described at the outset of this brief. When conducting claim construction, the court should “rely heavily on the written description for guidance as to the meaning of the claim terms.” *Phillips*, 415 F.3d at 1317. Comcast instead relies extensively on extrinsic evidence and unsubstantiated claims of its expert, while treating the patent specification – the “single best guide” for claim construction, *id.* at 1315 – as an afterthought. Because Comcast’s constructions depart from (and at least in one case contradict) the explicit teaching of the ’627 patent specification, they are incorrect as a matter of law.

1. trellis encoded channel symbol (claims 9, 19)

Comcast’s construction of this term requires trellis encoded channel symbols to be generated using the outputs of a “single state transition” of the trellis encoder. Comcast asserts that its construction is consistent with the preferred embodiment because the patent is purportedly “clear” that pairs of subset identifiers are “generated in parallel” and thus generated during a single state transition. (Response at 29.) The reality is that Comcast points to nothing in the specification that supports this notion. It relies instead exclusively on its expert. (Response at 29; Bims Decl. ¶ 53.)

The patent specification, in fact, teaches exactly the opposite of what Comcast contends. It repeatedly states that subset identifiers are generated sequentially rather than in parallel.

- “[T]he words identified on lead 109 are used by trellis encoder 119 α to *sequentially* identify on lead 121 N subsets . . .” (Ex. 4 at 3:53-55.)
- “A *succession* of N outputs from the trellis encoder identifies a particular one of the 2N-dimensional subsets . . .” (*Id.* at 4:19-21.)

Since Comcast’s proposed construction would exclude the channel symbols specifically described in the ’627 patent, that construction is presumptively incorrect. *Primos, Inc. v. Hunters Specialties, Inc.*, 451 F.3d 841, 848 (Fed. Cir. 2006) (noting that “we also should not normally interpret a claim term to exclude a preferred embodiment”).

2. signal point (claims 9, 19)

Comcast claims that the term “signal point” is “overwhelmingly” used to refer to a “mapped” point in a signal constellation. (Response at 31.) Yet Comcast does not identify a single description of this “mapping,” either in the ’627 patent or in its own extrinsic evidence. Comcast’s citations to the ’627 patent (“[t]his constellation is comprises of 32 signal points, which are divided into four subsets, A through D, each comprised of eight signal points”) and to the extrinsic evidence ’000 patent (“[e]ach signal point in the [signal] constellation has an associated bit code”) mention nothing about mapping. (Response at 30-31.) Comcast’s inclusion of “mapped” in its construction is unsubstantiated, making its construction incorrect.

Comcast’s sole argument against Rembrandt’s construction is that signal points are not transmitted. The patent specification, however, directly contradicts this argument. “Those two signal points are thereupon *communicated over the channel* by QAM encoder 124 and modulator 128 as described above.” (Ex. 4 at 4:1-3.) Moreover, Comcast’s expert also concedes that signal points are transmitted. (Bims Decl. ¶ 35 (“Each signal point corresponds to certain waveform characteristics (e.g., amplitude, frequency, etc.), and as such can be *transmitted over the medium* (e.g., a wire).”))

3. distributed Viterbi decoder (claims 9, 19)

By requiring “two or more Viterbi decoders” in its construction, Comcast completely fails to address the explicit disclosure of the ’627 patent cited in Rembrandt’s opening brief.

[M]ultiple trellis encoders and decoders can be realized using *a single program routine which*, through the mechanism of indirect addressing of multiple arrays within memory, *serves to provide the function of each of the multiple devices*.

(Ex. 4 at 9:61-66.) The specification makes clear that the distributed Viterbi decoder can be implemented as a single Viterbi decoder that emulates the function of multiple physical devices. Such a distributed Viterbi decoder, contrary to Comcast's assertion, is distinguishable over a prior art Viterbi decoder because it has multiple, rather than a single, Viterbi decoding processes.

4. means for deinterleaving the interleaved signal points to recover said plurality of streams of trellis encoded channel symbols (claim 9)

Comcast asserts that the function of this limitation is "expressly limited to reversing the signal point interleaving" that is performed by interleaver 341 in the transmitter. (Response at 33.) This notion is contradicted by the claim language itself, which states that the claimed deinterleaving must "recover [a] plurality of streams of trellis encoded channel symbols" – a function that is clearly performed by switching circuit 431. (See Ex. 4 at Fig. 4.)

Comcast is also incorrect that switching circuit 431 "by itself" cannot deinterleave the interleaved signal points. (Response at 33-34.) The claims describe interleaving signal points *in two different ways*: one way ensures that "signal points of each channel symbol are non-adjacent" and a second way causes "signal points of adjacent symbols in any one of said channel symbol streams [to be] non-adjacent." The corresponding structure identified by Comcast – essentially the deinterleaver 441 – is involved in reversing only the first of those processes, and is therefore incomplete. By contrast, Rembrandt's construction correctly identifies *both* of the structures that perform deinterleaving in the '627 patent.

Dated: January 17, 2007

Respectfully submitted,

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By: /s/ Thomas A. Brown

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on seventeenth day of January, 2007 to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by first class mail.

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Exhibit 25

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP)

Plaintiff,)

vs.)

No. 2:05-cv-00443-TJW

COMCAST CORPORATION; COMCAST)

CABLE COMMUNICATIONS, LLC;)

AND COMCAST OF PLANO, LP)

Defendants.)

VIDEOTAPED DEPOSITION OF CURTIS A. SILLER, Ph.D.,
San Francisco, California
Wednesday, December 20, 2006

Reported by:
Rebecca Romano,
CSR No. 12546
Job No. 201462

1 San Francisco, California, Wednesday, December 20, 2006

2 9:27 A.M. - 4:22 P.M.

3
4 (Siller's Exhibit Nos. 1 through 4 were marked
5 for identification.)

6 THE VIDEOGRAPHER: Good morning. Here begins
7 Videotape No. 1 in the deposition of Curtis Siller in
8 the matter of Rembrandt v. Comcast in the United States
9 District Court for the Eastern District of Texas
10 Marshall Division, Case No. 205-CV-00443-DJW.

11 Today's date is December 20th, 2006. The time
12 is 9:27 A.M.

13 This deposition is being taken at 710 Sansome
14 Street, San Francisco, California. The videographer is
15 Marty Marjoub, here on behalf of Esquire Deposition
16 Services, 505 Sansome, Suite 502, San Francisco,
17 California.

18 Will all counsel present please identify
19 yourselves and state whom you represent.

20 MR. DEVLIN: Tim Devlin of Fish & Richardson
21 for plaintiff Rembrandt.

22 MR. WERDEGAR: Matthew Werdegarr of Keker & Van
23 Nest for defendant Comcast. Also present is Audrey --

24 MS. WALTON-HADLOCK: Walton-Hadlock.

25 MR. WERDEGAR: -- Walton-Hadlock.

1 over. I think I --

2 The part on the left is the packet channel.

3 A Understood you to have said that, yes.

4 Q Let me just say it all again clearly.

5 A Okay.

6 Q We'll start from the start.

7 We're looking at that dotted line down the
8 middle of figure 5. And it divides it into two regions,
9 right?

10 A Correct.

11 Q The region on the left is the channel for
12 packet sources.

13 MR. WERDEGAR: Objection. Form.

14 Q (By Mr. Devlin) Is that fair?

15 A Yes.

16 Q And the region on the right are the channels
17 for the synchronous sources.

18 MR. WERDEGAR: Objection. Form.

19 THE DEPONENT: Not labeled as such, but I
20 would infer that to be the case.

21 Q (By Mr. Devlin) There are time slots shown on
22 the left-hand side of the figure.

23 A Right.

24 Q What are those?

25 MR. WERDEGAR: Objection. Form.

1 THE DEPONENT: Those are individual time
2 slots, fixed in size, that make up a portion of the part
3 of the overall frame that is set aside for packet
4 communications.

5 Q (By Mr. Devlin) On the right-hand side of the
6 figure it doesn't actually say the word "time slot."

7 Do you see that?

8 A Yes, I see that.

9 Q Based on your understanding and reading of the
10 entire patent, is it your understanding that those time
11 slots exist on the right-hand side of the figure also?

12 A That would be my understanding.

13 Q They are just not shown in figure 5.

14 MR. WERDEGAR: Objection. Form.

15 Q (By Mr. Devlin) Is that fair?

16 A That's fair.

17 Q There's a designation that says, "Start of
18 packet 50."

19 Do you see that?

20 A I do.

21 Q And that starts -- a thick bold line that
22 starts on frame 1, ends at that dotted line, and then
23 continues onto the left-hand side of frames 2 and 3,
24 continues into frame 4, again, on the left-hand side,
25 and then ends.

1 Q Are you able to tell from figure 5 which of
2 the packet data sources would transmit the next packet
3 after the one that's shown?

4 MR. WERDEGAR: Objection. Form.

5 THE DEPONENT: Not from figure 5.

6 Q (By Mr. Devlin) If you knew from the text of
7 the patent -- this is a hypothetical.

8 If the text of the patent told you which of
9 the packet data sources was transmitting that packet --

10 A Uh-huh.

11 Q -- in figure 5 --

12 A Yes.

13 Q -- could you then tell me what the next packet
14 source would be to transmit a packet?

15 MR. WERDEGAR: Objection. Form.

16 THE DEPONENT: I could not.

17 Q (By Mr. Devlin) Why is that?

18 A Because the very next -- next one may not have
19 any information to send.

20 Q And if it doesn't, what would happen?

21 A It would go to the next one.

22 Q So there's no particular order in which the
23 packet data sources have to transmit data in the '858
24 patent invention.

25 MR. WERDEGAR: Objection. Form.

1 THE DEPONENT: I believe this is description
2 of a sequential process in which there is a sequential
3 arbitration to invite the individual packet modules to
4 transmit.

5 Q (By Mr. Devlin) Let me -- let me see if I can
6 get an answer. This is a foundational question.

7 There's --

8 A What is --

9 Q -- no actual --

10 A What is a foundational question?

11 Q I just want to get a more basic bit of
12 information --

13 A Oh.

14 Q -- from you.

15 A Okay.

16 Q In the '858 patent, there's no actual sequence
17 by which the packet sources have to transmit their
18 information.

19 MR. WERDEGAR: Objection.

20 Q (By Mr. Devlin) Is that fair?

21 MR. WERDEGAR: Objection. Form.

22 THE DEPONENT: I think that's fair.

23 Q (By Mr. Devlin) And what you were saying
24 before is that there is some sequence of arbitration,
25 right?

1 A Yes.

2 Q But that arbitration doesn't mean that the
3 packet data's -- data sources will actually transmit in
4 a given sequence.

5 MR. WERDEGAR: Objection. Form.

6 THE DEPONENT: That's right.

7 Q (By Mr. Devlin) In fact, let's turn to
8 figure 6.

9 Could you describe for me what's happening in
10 figure 6 of the '858 patent?

11 MR. WERDEGAR: Objection. Form.

12 THE DEPONENT: Yeah. I will try to describe
13 it.

14 Time is shown as elapsing across the top.

15 Q (By Mr. Devlin) From left to right?

16 A Yes, from left to right.

17 Q Thank you.

18 A And there is a suggestion that among the
19 packet data there have been -- has been a closing flag
20 indicating that one of the packet sources has ceased
21 communicating.

22 Q Can I ask you where you are referring to that
23 closing flag?

24 A It's in the lower left-hand part of
25 figure 6.

1 further on the right for P6, between what's designated
2 as T19 and T23, I suppose it would be. Between T19 in
3 the right-hand side of the figure, the only packet data
4 source that's transmitting is P6.

5 Fair to say?

6 A Again, that would --

7 MR. WERDEGAR: Objection. Form.

8 THE DEPONENT: That would be my
9 interpretation.

10 Q (By Mr. Devlin) Okay. So just to summarize
11 this figure, figure 6, we are moving from the left to
12 the right, and first, packet source 2 transmits
13 information, then there's a closing flag, and then the
14 next packet source to transmit information is packet 6.

15 MR. WERDEGAR: Objection. Form.

16 Q (By Mr. Devlin) Is that -- is that a fair
17 interpretation of the figure?

18 A Yes. If we overlook the fact that the
19 preceding module, which is not identified, has
20 transmitted its closing flag.

21 Q Will -- will module 6 always transmit
22 information after module 2?

23 MR. WERDEGAR: Objection. Form.

24 Q (By Mr. Devlin) Based on your understanding
25 of the '858 patent?

1 A I don't think that's a necessary condition.

2 Q Why is that?

3 MR. WERDEGAR: Objection. Form.

4 THE DEPONENT: Because module 2 and the
5 preceding modules may have had nothing to transmit at
6 all.

7 Q (By Mr. Devlin) So -- so I'm saying, next
8 time around, module 2 may transmit again sometime later
9 in time, correct?

10 A It may or may not.

11 Q It may never transmit information again.

12 Is that fair?

13 A That's true.

14 Q If it did, would it necessarily follow that
15 module 6 would be the next module to transmit
16 information?

17 MR. WERDEGAR: Objection. Form.

18 THE DEPONENT: This level of detail is getting
19 outside my area of expertise in terms of how the actual
20 arbitration process works for the packet modules on the
21 bus.

22 Q (By Mr. Devlin) Is it your understanding that
23 the next time module 2 transmitted information, it could
24 be followed by module 3?

25 MR. WERDEGAR: Objection. Form.

1 Q (By Mr. Devlin) Is that fair?

2 A Yeah.

3 Q Or module 4?

4 A Possibly.

5 Q Just depends on who has information to send
6 after module 2 and the nature of the arbitration
7 technique that's used.

8 MR. WERDEGAR: Objection.

9 Q (By Mr. Devlin) Is that fair?

10 MR. WERDEGAR: Objection. Form.

11 THE DEPONENT: That's right.

12 Q (By Mr. Devlin) In figure 6, there's
13 something called a P-R-E-Q, all capital letters next to
14 one another.

15 Do you see that?

16 A Yes.

17 Q And then there is something called a
18 P-H-O-L-D.

19 A Okay.

20 Q I sometimes refer to that as PREQ and PHOLD.
21 Is that how you refer to those?

22 A I don't really refer to them because, as I
23 indicated, the details of the arbitration technique for
24 the packet sources to get on is outside my area of
25 expertise.

1 Q Do you see a paragraph beginning around
2 line 18?

3 A Yes, I do.

4 Q Reference to something called asynchronous
5 transfer mode, ATM?

6 A That's right.

7 Q Do you have an understanding of what ATM is?

8 A Yes, I do.

9 Q What is it?

10 A It's a packetization technique for carrying a
11 variety of traffic, and it's most noted by the fact that
12 the packets are fixed in size.

13 Q Why are they fixed in size?

14 A It was a compromise between the
15 telecommunication and the data industry that the
16 particular size of the packets that are used for ATM, if
17 carrying voice, are well-suited to the PSTN, the public
18 switch telephone network.

19 Whereas, people working in the computer
20 industry are more inclined to want to send information
21 in a packetized form, so they compromised on the size
22 that met the needs of telephony and a fact that
23 packetization is used for data communications.

24 Q What do you mean by "telephony"?

25 A Telephone calls.

1 Q There is a sentence that begins at around line
2 22, "In the case of ATM."

3 Do you see that?

4 A Yes. "In the case of ATM."

5 Q Yeah. I will just read that sentence.

6 And it says, "In the case of ATM cells, the
7 oxidants which form the cells need to be aligned within
8 DS0 channels."

9 Do you see that?

10 A I do.

11 Q Do you have an understanding of what an ATM
12 cell?

13 A Yes, I do.

14 Q That's that 48 bits you were just talking
15 about?

16 A Well, it's actually 53. And they are bytes.

17 Q Oh, 53 bytes. Thank you.

18 Is there anything else that makes up part of
19 an ATM cell?

20 A Well, it has the two ingredients. It has the
21 header. It has the information field. Part of the
22 AT -- information field can be given over to what they
23 call the ATM adaptation layer.

24 Q What is in the header?

25 A The header would contain addressing

1 information. Yeah, addressing information.

2 Q Anything else?

3 A It may indicate the fact -- what type of AAL,
4 ATM adaptation layer is being used. There are five, AAL
5 1 through AAL 5.

6 Q Okay. Are ATM cell -- when you are using an
7 asynchronous transfer mode network --

8 A Uh-huh.

9 Q -- are ATM cells used for both the packetized
10 data and for telephony?

11 MR. WERDEGAR: Objection. Form.

12 THE DEPONENT: Would you repeat the question
13 one more time.

14 Q (By Mr. Devlin) Yeah. Let me try to ask a
15 simpler one.

16 Are ATM cells used for telephony applications
17 in ATM networks?

18 MR. WERDEGAR: Objection. Form.

19 THE DEPONENT: Yes, they are.

20 Q (By Mr. Devlin) That sentence continues to
21 say, "The octets which form the cells need to be aligned
22 within DS0 channels."

23 Do you see that?

24 A I do.

25 Q Do you understand what I mean by octets?

1 MR. WERDEGAR: Objection. Form.

2 THE DEPONENT: It says on the second line that
3 it's an example.

4 Q (By Mr. Devlin) Are you aware of other ways
5 to do time-division multiplexing that don't involve
6 collision avoidance?

7 MR. WERDEGAR: Objection. Form.

8 THE DEPONENT: Yes. I think there are other
9 techniques.

10 Q (By Mr. Devlin) Can you tell me an example?

11 A Well, there are pulling strategies. For
12 example, a lower, I think is one of them, in which you
13 have multiple sources that try to access a shared
14 medium, but they are only given permission if they
15 receive a token which they pick up.

16 So that would be an example of one.

17 Q That does not use collision avoidance?

18 MR. WERDEGAR: Objection. Form.

19 THE DEPONENT: Well, it depends on what you
20 mean by collision avoidance. Certainly using the token
21 avoids the incident of a collision.

22 Q (By Mr. Devlin) Are there any examples of
23 time-division multiplexing, that you're aware of, where
24 collisions can take place?

25 MR. WERDEGAR: Objection. Form.

1 THE DEPONENT: Where collisions can take
2 place?

3 Q (By Mr. Devlin) Uh-huh.

4 A Yes.

5 Q Can you give me an example of one of those
6 types of time-division multiplexing techniques?

7 MR. WERDEGAR: Objection. Form.

8 THE DEPONENT: There are techniques where one
9 or more sources -- excuse me -- two or more sources can
10 try to access a bus, and they do this simultaneously,
11 and a collision, in fact, does take place. They gather
12 a number of techniques that detect that a collision has
13 occurred, and then they back off a random amount of time
14 and reattempt to access the bus.

15 Q (By Mr. Devlin) Is there a specific example
16 of that, that you have in mind?

17 MR. WERDEGAR: Objection. Form.

18 THE DEPONENT: No.

19 Q (By Mr. Devlin) No. Okay.

20 Is it like Ethernet works?

21 MR. WERDEGAR: Objection. Form.

22 Q (By Mr. Devlin) My question, just in case it
23 wasn't clear because I said it fast, was: Do you know
24 how Ethernet works, Dr. Siller?

25 A No. I don't know the details of how Ethernet

1 confirming, when you said "network administrator," you
2 meant an actual person whose job it is to be a
3 network --

4 A Right.

5 Q -- administrator.

6 That's what you meant?

7 A Yeah.

8 Q Okay. What's a network clock framing
9 period?

10 MR. WERDEGAR: Objection. Form.

11 THE DEPONENT: Well, there are subframes. And
12 if there are subframes, there are presumably frames.

13 Q (By Mr. Devlin) Uh-huh.

14 A And since these are delineated in time between
15 the acknowledged here and the claims terms, I think that
16 explains it.

17 Q Does this suggest to you that the user could
18 do the division of the period into frames and subframes
19 and time slots?

20 MR. WERDEGAR: Objection. Form.

21 THE DEPONENT: I'm not sure I have an expert
22 opinion on that.

23 Q (By Mr. Devlin) Okay. In any case,
24 there's -- there's nothing in that phrase that we just
25 read or anything else that you can think of that states

1 that the network timing means actually does that
2 division, right?

3 A Right.

4 Q Okay.

5 A In fact, I believe that to be the structure
6 that count- -- is a counterpart to the patent claim
7 terms you had me read.

8 Q When you say the structure -- now, let's talk
9 about that.

10 I'm looking at the chart again. I'm sorry.

11 A That's sorry.

12 Q And now I'm carrying over -- unfortunately,
13 this thing goes from A-23 to A-24, and on A-24 you see
14 the structure.

15 A Oh, fine.

16 Q Right?

17 A Yeah.

18 Q Okay. And so the structure that you designate
19 is the network timing and control processor 12, right?

20 A Correct.

21 Q Okay. And then you provide some citations
22 there.

23 A Yeah.

24 Q Can I ask you this: What exactly is the
25 structure that you are citing here? Is it just the

1 Q Uh-huh.

2 A -- in Figures No. 1 and 3. So it's not
3 specific what within the master unit does that.

4 Q Right. It doesn't necessarily say that it's
5 the ranging means within the master unit that does that.
6 It's -- it could be something else in the master unit.

7 Is that fair?

8 MR. WERDEGAR: Objection. Form. Leading.

9 THE DEPONENT: That's a possible
10 interpretation.

11 Q (By Mr. Devlin) Is that a fair statement,
12 that something else in the master unit could perform
13 that function; that is, transmitting the transmission
14 time to each of the respective remote units?

15 MR. WERDEGAR: Objection. Form. Leading.

16 THE DEPONENT: I think that some of those
17 capabilities are captured in the structure that we
18 enumerate over here.

19 Q (By Mr. Devlin) I'm -- I'm with you there.
20 But what I'm asking you is -- so the -- let's just start
21 at the start again.

22 A Okay.

23 Q This text doesn't specify that this
24 transmission from the master unit to each of the
25 respective remote units is performed by the ranging

1 means, right?

2 A That's correct.

3 Q Okay. The master unit includes the ranging
4 means.

5 A It does.

6 Q Okay. But there's other things in the master
7 unit also, right?

8 A That's right.

9 Q Okay. And it could be something else in the
10 master unit that performs that transmission function.

11 MR. WERDEGAR: Objection. Leading.

12 Q (By Mr. Devlin) Is that fair?

13 MR. WERDEGAR: Objection. Form.

14 THE DEPONENT: Yes, that's fair.

15 Q (By Mr. Devlin) Okay. Let's talk now about
16 the function that you lay out -- oh, let me back up for
17 a second.

18 So apart from this claim language that we have
19 just been discussing, is there anywhere else in the
20 patent -- so we have been talking about the basis for
21 your opinion that this claim term is, in fact, subject
22 to 112, 6, right?

23 A That's right.

24 Q And you just gave me this claim language as
25 one of your bases, and we talked about it, right?

1 Q (By Mr. Devlin) Sure. And you haven't --

2 A So I haven't formed an opinion on every
3 aspect.

4 Q Okay. You do agree with me, though, that the
5 description in the patent indicated that time slots
6 could be assigned dynamically?

7 MR. WERDEGAR: Objection. Form. Leading.
8 Beyond the scope.

9 THE DEPONENT: I have read that in the
10 description.

11 Q (By Mr. Devlin) Let me just make sure we are
12 on the same page.

13 A Okay.

14 Q What we read in the description at column 2,
15 lines 18 through 26 -- do you see that?

16 A Yeah.

17 Q -- indicates to you that time slots can be
18 assigned dynamically.

19 Is the fair?

20 MR. WERDEGAR: Objection. Form. Leading.
21 Beyond the scope of his expert designation.

22 THE DEPONENT: Well, the master unit is going
23 to make a decision as to whether or not the requesting
24 remote unit should use additional access slots. It
25 doesn't say that they are allocated to them.

1 communication, for example, and there are several people
2 using a network and you want to establish some users as
3 taking precedence over other users so they have a
4 different relative priority.

5 Q (By Mr. Devlin) What about priority in terms
6 of one type of data versus another; do you ever have
7 that type of priority?

8 A Yeah. That -- that could occur as well.

9 Q And could you give me an example of that?

10 A I don't think of a specific example; I think
11 that maybe your words were sufficient. You have two
12 data communication flows. There's a decision made
13 somehow that one has a higher relative priority than
14 another, and that's that.

15 Q Would it be possible for one type of
16 application -- data associated with one type of
17 application to be granted a higher priority than data
18 associated with another application?

19 Would that be possible?

20 MR. WERDEGAR: Objection. Form.

21 THE DEPONENT: Yes. I think that would be
22 possible.

23 Q (By Mr. Devlin) Were you dealing with any
24 issues of priority in the late 1980s or early 1990s when
25 this patent was in the patent office and when it was

1 associated with Application No. 1. To say that I set
2 them or whomever would set them is not divulged here.

3 Q (By Mr. Devlin) So let me just confirm what
4 you said.

5 This figure indicates that there can be
6 priority bits associated with Application 1.

7 Is that a fair reading of it?

8 MR. WERDEGAR: Objection. Form. Objection.
9 Leading. Beyond the scope.

10 THE DEPONENT: Yes.

11 Q (By Mr. Devlin) And then you could also have
12 priority bits associated with Application 2, right?

13 MR. WERDEGAR: Same objections.

14 THE DEPONENT: Yes.

15 Q (By Mr. Devlin) And you could have -- excuse
16 me. You could have priority bits associated with
17 Application N.

18 MR. WERDEGAR: Same objections.

19 THE DEPONENT: Yes.

20 Q (By Mr. Devlin) And those priority bits could
21 be different between Application 1 and Application 2.

22 Is that fair?

23 MR. WERDEGAR: Objection. Leading.
24 Objection. Form. Beyond the scope.

25 THE DEPONENT: Well, it depends on how many

Exhibit 26

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP,)

)

Plaintiff,)

)

vs.)

No. 2:05-cv-00443-TJW

)

COMCAST CORPORATION; COMCAST)

CABLE COMMUNICATIONS, LLC;)

AND COMCAST OF PLANO, LP,)

)

Defendants.)

)

Deposition of HARRY BIMS, Ph.D., EE, taken on
behalf of Plaintiff, at 710 Sansome Street, San
Francisco, California, beginning at 8:56 a.m. and
ending at 6:02 p.m., on Friday, December 22,
2006, before GINA GLANTZ, Certified Shorthand
Reporter No. 9795.

1 HARRY BIMS, Ph.D., EE,
2 having been first duly sworn, was examined and testified
3 as follows:
4

5 EXAMINATION

6 BY MR. KOLODNEY:

7 Q Good morning -- is it Dr. Bims or Mr. Bims?

8 A Dr. Bims, yes.

9 Q Okay. Dr. Bims, my name is Larry Kolodney and
10 I represent the plaintiff in this case, Rembrandt
11 Technologies. And I'll be asking you a series of
12 questions today. As you probably already understand,
13 you're under oath and you need to answer your questions
14 truthfully as though you were testifying in a court of
15 law. Do you understand that?

16 A Yes.

17 Q Okay. Please state your name and address for
18 the record.

19 A Harry Bims, 1314 Chilco Street, Menlo Park,
20 California 94025.

21 Q And Dr. Bims, do you know why you're here today
22 to testify?

23 A I'm here to testify based upon the request of
24 Rembrandt, I believe.

25 Q Okay. Do you understand that you're here to

1 error-corrected?

2 MR. WERDEGAR: Objection to form.

3 THE WITNESS: There are some Reed-Solomon codes
4 that operate on bytes, but Reed-Solomon codes are more
5 general than that.

6 BY MR. KOLODNEY:

7 Q Is it true that Reed-Solomon codes, in general,
8 work on a -- correct a unit of data that is larger than
9 one bit?

10 MR. WERDEGAR: Objection to form.

11 THE WITNESS: So when you say "a unit of data,"
12 what are you referring to?

13 BY MR. KOLODNEY:

14 Q I'm referring to the concept that, in a
15 Reed-Solomon code, a piece of data that's larger than
16 one bit is corrected by the code rather than the code
17 correcting individual bits that are erroneous.

18 A Well, the error-correction code itself does not
19 correct data bits. It simply provides the information
20 that is useful for the eventual correction of those
21 errored bits.

22 Q Well, something on the receiver that is a
23 Reed-Solomon decoder does that; right?

24 A Yeah. The purpose of a Reed-Solomon decoder
25 would be to take advantage of the extra information

1 supplied by a Reed-Solomon encoder for the purposes of
2 correcting errored bits.

3 Q And isn't it the case that, in a Reed-Solomon
4 decoder, errors are corrected typically on a bitwise
5 basis?

6 MR. WERDEGAR: Objection to form.

7 THE WITNESS: Yeah, I would say that there are
8 a variety of implementations for a Reed-Solomon decoder,
9 and that you do not necessarily have to decode
10 Reed-Solomon code words on a byte-by-byte basis.

11 BY MR. KOLODNEY:

12 Q What's a Reed-Solomon code word?

13 A A Reed-Solomon code word is a concatenation of
14 bits generated from a Reed-Solomon encoder.

15 Q And what is the significance of the size of the
16 Reed-Solomon code word?

17 MR. WERDEGAR: Objection to form.

18 THE WITNESS: The significance of the size?

19 BY MR. KOLODNEY:

20 Q Well, let me ask you this. Is there a size of
21 a code word associated with a given Reed-Solomon code?

22 MR. WERDEGAR: Objection to form.

23 THE WITNESS: Well, as I say, a Reed-Solomon
24 code is a general concept relating to a fairly flexible
25 algorithm, so there is no one particular size to a

1 A A layer is a decomposition of the
2 communications protocol into a subset of functions that
3 are provided by the protocol.

4 Q What's the value of decomposing a protocol into
5 sets of functions that are associated with different
6 layers?

7 MR. WERDEGAR: Objection to form.

8 THE WITNESS: Well, the value of doing such
9 decomposition is that it reduces the complexity of the
10 research and analysis and implementation of the
11 communications protocol to decompose the functions into
12 layers that can be updated without affecting the other
13 layers.

14 BY MR. KOLODNEY:

15 Q Can a communications protocol exist in multiple
16 layers at the same time?

17 A Yes. There are many examples of communications
18 protocol standards that encompass multiple layers in the
19 OSI protocol model.

20 Q Can you give me some of those examples?

21 A Okay. I would say that -- let's pick GPRS.
22 The GPRS protocol standard encompasses physical layer
23 functions, data link layer functions, and even network
24 layer functions in the protocol.

25 Q Okay. How does one distinguish between the

1 different layers when looking at a protocol to determine
2 which functions belong in which layer --

3 MR. WERDEGAR: Object.

4 BY MR. KOLODNEY:

5 Q -- of the OSI seven-layer model?

6 MR. WERDEGAR: Objection to form.

7 THE WITNESS: Well, it's generally understood
8 as to which functions go within which layer of the OSI
9 protocol model.

10 BY MR. KOLODNEY:

11 Q Well, is there someplace where people look to
12 find this general understanding? Is there an
13 authoritative source for the definition of the different
14 layers?

15 MR. WERDEGAR: Objection to form.

16 THE WITNESS: There's certainly places where
17 one can go to get the definition of the OSI protocol
18 layer. It's a pretty common terminology. And there are
19 several places, textbooks, Web sites, et cetera, which
20 describe it.

21 (Deposition Exhibit 2 marked.)

22 BY MR. KOLODNEY:

23 Q Showing you what's been marked as Exhibit 2,
24 which is a paper by Hubert Zimmermann entitled "OSI
25 Reference Model - The ISO Model of Architecture for Open

1 identified in the section 7, "Physical Layer," that I
2 just read.

3 Q Okay. Do you think that the current
4 understanding of the physical layer in the OSI reference
5 model includes everything that you read in -- on page
6 430 of the Zimmermann paper and then some other things
7 as well?

8 MR. WERDEGAR: Objection to form.

9 THE WITNESS: I'm not necessarily opposed to
10 this paragraph as written.

11 BY MR. KOLODNEY:

12 Q Okay. So --

13 A But I do believe that, again, there are other
14 elements that are not mentioned in this paragraph that I
15 would include in the definition.

16 Q Okay. So you agree that, as presently
17 understood, and as understood in the 1990s, the physical
18 layer included at least the mechanical, electrical,
19 functional, and procedural characteristics to establish,
20 maintain, and release physical connections (e.g., data
21 circuits) between data link entities?

22 MR. WERDEGAR: Objection to form.

23 BY MR. KOLODNEY:

24 Q Would you agree with that?

25 MR. WERDEGAR: Objection to form. Objection.

1 Leading.

2 THE WITNESS: Yeah, I would say that at least
3 those elements would be included in the physical layer.

4 BY MR. KOLODNEY:

5 Q Okay. Do you have an understanding of what is
6 meant by functional and procedural characteristics to
7 maintain -- establish, maintain, and release physical
8 connections?

9 A Those are fairly vague terms, but I do have
10 some sense of what they might mean.

11 Q What's your best understanding?

12 A Well, the -- my best understanding is that the
13 functional and procedural characteristics are going
14 beyond simply the physical, mechanical or electrical
15 connectors, but going into certain algorithms that are
16 implemented as characteristics of the physical layer.

17 Q Okay. Can you give me some examples of what
18 you have in mind?

19 A Well, certain algorithms would include
20 algorithms for timing recovery, for equalization, for
21 error correction, you know, other signal-processing
22 characteristics like that.

23 Q What does timing recovery mean?

24 A Timing recovery is a process that a receiver
25 would go through to synchronize its timing information

1 history, so I didn't remember whether or not there were
2 changes since the original application.

3 Q Apart from the claims, the written description
4 in this patent is the same as what you filed with the
5 patent office, isn't it?

6 A I'd have to read it, the file history, to know
7 whether or not there were any changes since the initial
8 application.

9 Q Well, we can find out whether there were any
10 changes. But I'm going to ask you whether the patent
11 application that you filed with the patent office that
12 led to this patent was something that you agreed with in
13 1998 when you filed it.

14 A Yes, I believe that the invention was the --
15 was something I agreed with, yes.

16 Q And the description of how the invention worked
17 in this patent was accurate, was it not?

18 A Of how the invention worked, yes.

19 Q I'd like you to turn your attention to column
20 8, line 5.

21 A Okay.

22 Q And read for me the first two sentences --
23 first three sentences of that paragraph.

24 A It says, "Data link layer (Layer 2) 408 looks
25 the same for all protocols. In one embodiment, data

1 link layer 408 is implemented for inbound channels in
2 device driver 304 with Reed-Solomon decoding of the
3 inbound data packets, check-sum verification and packet
4 identification."

5 Q Dr. Bims, did you or did you not, in the '911
6 patent, describe the data link layer as including
7 Reed-Solomon decoding of inbound packets?

8 MR. WERDEGAR: Objection to form. Objection.
9 Leading.

10 THE WITNESS: What I said here, and I'm looking
11 word for word at what is written in this specification,
12 is that in one embodiment, it is possible to do
13 Reed-Solomon decoding of inbound packets, add in a data
14 link layer in that embodiment.

15 BY MR. KOLODNEY:

16 Q So in the embodiment you were describing in
17 this paragraph, in your patent, you describe the data
18 link layer as including the Reed-Solomon decoding of
19 inbound packets, did you not?

20 MR. WERDEGAR: Objection to form. Objection.
21 Leading. And if you need --

22 THE WITNESS: I haven't even read the patent.

23 MR. WERDEGAR: If you need to take time -- if
24 you want to review the patent before answering the
25 question, you should feel welcome to refresh yourself.

1 THE WITNESS: Okay, I mean, you know, we just
2 grabbed a sentence here. It's been -- what? -- six --
3 five years or -- when did I submit it? Eight years ago.
4 But I know that that text that we just read refers to
5 figures that are elsewhere in the specification and --
6 BY MR. KOLODNEY:

7 Q Well, I'll tell you what. You read this, and
8 tell me when you've read enough of it to explain the
9 three sentences that we just read into the record,
10 please. Take as much time as you need.

11 A Okay.

12 Q All right?

13 A Um-hmm.

14 Q So first of all, the data link layer that's
15 referred to in column 8 of your patent is the data link
16 layer of the OSI model; right?

17 A Yes.

18 Q That's what it says in the previous column --

19 A Right.

20 Q -- okay? And the thing you're describing in
21 column 8 is elements of a receiver; right?

22 A Um-hmm.

23 Q And the receiver in layer 2, in the data link
24 layer, is using a Reed-Solomon decoder --

25 A Um-hmm.

1 into a new area. You don't think it's an appropriate
2 time to take a lunch break?

3 MR. KOLODNEY: Sure.

4 MR. WERDEGAR: Thanks.

5 THE VIDEOGRAPHER: We're now going off the
6 video record. The time is 12:29 p.m.

7 (Lunch recess.)

8 THE VIDEOGRAPHER: We are now back on the video
9 record. The time is 1:31 p.m.

10 BY MR. KOLODNEY:

11 Q Dr. Bims, was the purpose of the Reed-Solomon
12 decoder in your '911 patent to detect and correct errors
13 that can occur in the physical layer?

14 A Yes.

15 Q And you mentioned that some of your earlier
16 work involved development of trellis codes; is that
17 correct?

18 A Yes.

19 Q And was the purpose of the trellis codes that
20 you developed to detect and correct errors that could
21 occur in the physical layer?

22 A The purpose, the main purpose was that, but
23 that wasn't my invention, but that's what the trellis
24 codes were doing.

25 Q In general, that's what trellis codes are used

1 Q Do you know what CDMA_ALOHA is?

2 A This is the first time I've heard of
3 CDMA_ALOHA.

4 Q Okay. I'd like you to read the first two
5 sentences of the abstract aloud, please.

6 A "In this paper, we analyze the performance of a
7 CDMA_ALOHA scheme by considering the packet collision
8 probability as well as the bit error probability. And
9 we propose a new CDMA_ALOHA/FEC scheme which uses a
10 block FEC code in the data link layer for correcting bit
11 errors of the received packets. By analyzing the
12 proposed scheme, we show that the system throughput
13 closely relates to the bit error rates. The results
14 also show that the system throughput can be
15 significantly improved by using the FEC coding,
16 approaching to the value which is competitive with the
17 error-free channel."

18 Q What's FEC coding?

19 MR. WERDEGAR: Objection to form.

20 THE WITNESS: FEC code is a forward
21 error-correction code.

22 BY MR. KOLODNEY:

23 Q And what are some examples of forward
24 error-correction codes?

25 A I would say forward error-correction codes

1 would be, say, a Hamming code.

2 Q How about a Reed-Solomon code?

3 A Yeah, BCH codes, Reed-Solomon codes would be
4 FEC codes.

5 Q Would a trellis code be an FEC code?

6 A Yeah, I would say so.

7 Q Okay. And what you just read in the abstract
8 is a description of using a block forward
9 error-correction code in the data link layer for
10 correcting bit errors; is that not the case?

11 A That's --

12 MR. WERDEGAR: Objection. Objection to form.
13 Objection. Leading.

14 THE WITNESS: Yes, that's true.

15 BY MR. KOLODNEY:

16 Q So whatever you think link layer means, the
17 authors of this article clearly understood
18 error-correction coding to belong in the link layer;
19 isn't that correct?

20 MR. WERDEGAR: Objection to form. Objection.
21 Leading.

22 And if you feel you want to read the rest of
23 the article before you comment on -- comment on it,
24 you're welcome to take the time to do so.

25 THE WITNESS: Okay, well, when I read those

1 modulation?

2 A I would say that's a mischaracterization of
3 that term.

4 Q What's wrong with it?

5 A Well, I guess there are a number of things
6 wrong with that explanation. First of all, you're
7 talking about a process selected by a process, which
8 implies that you have to have some sort of software
9 routine running on an operating system to do the
10 selection, and that's not necessarily the case for
11 negotiation.

12 Q Well, where do you see process meaning
13 software?

14 A The word "process" is typically used in the
15 context of a software program running at run time.

16 Q What if process is simply meant to mean a
17 method or a protocol?

18 MR. WERDEGAR: Objection to form.

19 THE WITNESS: Well, I mean, we could
20 hypothetically come up with all sorts of definitions for
21 terms. I'm just giving you my explanation of, when I
22 read the construction, why I felt it wasn't the most
23 accurate one.

24 BY MR. KOLODNEY:

25 Q Okay. Let me then rephrase it and say, would

1 you agree that a negotiated physical modulation is
2 selected by a method permitting two modems supporting
3 different physical layer modulations to agree on a
4 physical layer modulation?

5 A Well, again, I guess that's a truncated
6 recitation of the fullness of the construction.

7 Q Well, would you agree that it's accurate, as
8 far as it goes?

9 A I would agree that it's an abbreviation of the
10 correct definition.

11 Q Okay. And what if I added to that that one
12 modem has to present one or more options to the other
13 modem and the other modem has to choose, from among the
14 presented options, which ones it wants to use; would
15 that be correct?

16 A Well, again, as was stated here on -- in
17 this -- in the file history on page 6, the answering
18 modem has to be incapable of receiv- -- executing the
19 command presented to it by the calling modem for there
20 to be negotiation. And then, secondly, this has to take
21 place at run time.

22 Q Okay. And would you agree that if the two
23 modems did not support all the same physical layer
24 modulations, that the calling modem could present to the
25 answering modem a physical layer modulation that the

1 MR. WERDEGAR: Objection to form. Objection.

2 Leading.

3 BY MR. KOLODNEY:

4 Q That's what the second sentence means?

5 A Well, it's based upon the negotiated physical
6 layer connection, so it's not just independent of that.

7 Q Okay. But it does -- it achieves the
8 error-corrected connection by presetting the XID phase
9 parameters to default values; right?

10 MR. WERDEGAR: Objection to form. Objection.

11 Leading.

12 THE WITNESS: And -- yes, those values are
13 based upon what's negotiated at the physical layer.

14 BY MR. KOLODNEY:

15 Q Okay. And then those values are used to
16 automatically form a link layer connection; right?
17 That's what the third sentence says?

18 MR. WERDEGAR: Objection to form. Objection.

19 Leading.

20 THE WITNESS: It -- the third sentence says
21 that a link layer connection is immediately established
22 once the physical layer modulation has been negotiated.

23 BY MR. KOLODNEY:

24 Q Because the XID phase parameters are set to
25 default values, so there's no need to negotiate them;

1 BY MR. KOLODNEY:

2 Q No, but you've said that, although the
3 structures that are specified here are not all necessary
4 to perform the functions, somewhere in this litany of
5 structures, we can find the necessary structure. That's
6 what you're saying, isn't it?

7 A No, I'm not saying that.

8 Q Well, you are saying that what's listed here is
9 more than is necessary to perform the recited function;
10 right?

11 A Yeah, I could -- for example, I've already said
12 that I could, for example, eliminate Figure 8 from what
13 I believe are the absolutely required structural
14 elements.

15 Q How about Figure 9?

16 A Within Figure 9, I would specifically point out
17 on Figure 9 itself the structural elements 114, 124,
18 120, and 124.

19 Q And what about those structural elements would
20 you point out?

21 A What about them?

22 Q You think those structural elements are
23 necessary to perform the function?

24 A Yes.

25 Q Okay. And those are pieces of hardware; right?

1 A Yes.

2 Q Okay. Is there any hardware listed in Figures
3 4 through 7?

4 A Let's see, Figures 4 through 7, I believe, are
5 flowcharts. Yes, they are all flowcharts.

6 Q Are all the steps in Figures 4 through 7
7 necessary to perform the function of the means for
8 establishing a physical layer connection limitation?

9 A The way I would read this, Figures 4 and 5 are
10 necessary structures for performing the function as a
11 collection, and then Figures 6 and 7 are also
12 structures, alternate structures, that perform the
13 function together, along with Figure 9 structures I
14 pointed out.

15 Q So it's not accurate to say, then, that you
16 need all of Figures 4, 5, 6, 7 and 9 in order to be the
17 corresponding structure to this limitation; right?

18 A Well, I guess my opinion here is that Figures 4
19 and 5, in combination with the structural elements that
20 I outlined on Figure 9, represent the necessary
21 structures for performing the function. And Figures 6
22 and 7, in combination with the structural elements that
23 I mentioned before on Figure 9, would be also an
24 alternate set of structures for performing the function.

25 Q Okay. So just to be clear, the position you're

1 Q Okay.

2 A And in that case, I'm not sure what would
3 happen.

4 Q But if it generated something other than a
5 1680-hertz response, it would be able to establish a
6 connection; right?

7 A The other parts of the flowchart would be
8 intact, so --

9 Q And that would be a negotiated physical
10 layer -- that would be a physical layer connection based
11 on a negotiated physical layer modulation, would it not?

12 MR. WERDEGAR: Objection to form. Leading.

13 THE WITNESS: In the scenario where 1680 --
14 1680-hertz, question mark, is false, under that
15 condition, then the rest of the flowchart would
16 implement a negotiated physical layer modulation.

17 BY MR. KOLODNEY:

18 Q So therefore, element 61 is not necessary for
19 the establishment of a physical layer connection based
20 on a negotiated physical layer modulation; correct?

21 A One would not need 61 to do that.

22 Q Do you want to modify your position on what the
23 elements of Figures 4 through 7 are that are the
24 corresponding structure to this limitation?

25 A Well, it appears that, in addition to the other

1 limitations that I put forth, that on Figure 4, that the
2 detection of ANSqck would actually not be required to
3 perform a negotiated physical layer modulation.

4 Q Is that it?

5 A Well, I'm looking at Figure 5. Figure 5 is the
6 answer modem flowchart. I would say that on Figure 5,
7 block 71 --

8 Q Is necessary or is not necessary?

9 A Let me think clearly here.

10 Q In fact, this whole flowchart of Figure 5 only
11 happens if box 61 in Figure 4 happens on the
12 transmitting modem; isn't that the case?

13 A I wouldn't say that.

14 Q Well, certainly box 71 corresponds to box 61,
15 doesn't it? So if you're not going to do box 61, you're
16 also not going to do box 71 or box 72 or box 73 in
17 Figure 5, so those must be unnecessary, as well, to
18 perform the function in this limitation; isn't that
19 right?

20 MR. WERDEGAR: Objection to form. Leading.

21 MR. KOLODNEY: You know, you keep saying
22 "leading." This is your witness. I have every right to
23 lead him as far as I want to go.

24 MR. WERDEGAR: I have two objections under the
25 Texas local rules and they're form and they're leading,

1 Q And 69.

2 A I would imagine in block 72, that a physical
3 layer modulation is never negotiated, if V.34S is never
4 received. So in that context, a physical layer
5 modulation, it's possible, would never get negotiated.

6 Q So the answer to my question, which is that the
7 only necessary structures in Figure 5 to perform the --
8 establishing a physical layer connection between said
9 calling and said answer modems based on a negotiated
10 physical layer modulation is boxes 69, 70 and 74; is
11 that correct? If you had -- if you perform those three
12 steps, you can perform the function required by that
13 limitation of claim 6?

14 A That's correct.

15 Q Okay. Now, turning to the next limitation
16 in -- the next means limitation in claim 6, which is
17 "means for establishing said link layer connection based
18 on said negotiated physical layer modulation," Comcast
19 has identified Figures 8 to 9, column 12, line 55, to
20 column 13, line 17; column 13, lines 34 to 41; column
21 13, line 55 to column 14, line 9. Do you agree with
22 that identification of structure corresponding to the
23 means for establishing said link layer limitation in
24 claim 6?

25 A Again, I would -- turning to these figures, the

1 structure that's performing this function of
2 establishing the link layer connection, would be in
3 Figure 9 --

4 Q I just asked you whether you agreed with what
5 is in Comcast's statement here about what the
6 corresponding structure is.

7 MR. WERDEGAR: And he was answering your
8 question, Counselor, and I'd appreciate it if you
9 wouldn't interrupt the answer in mid answer.

10 MR. KOLODNEY: I asked him whether he agreed.
11 I didn't ask him to identify the structures in the
12 specification, which is what he was doing.

13 MR. WERDEGAR: Well, you can tell him -- you
14 can ask the question again, but he's allowed -- he's
15 entitled to answer the question without you interrupting
16 him.

17 BY MR. KOLODNEY:

18 Q Do you or do you not agree with the
19 identification of structure that is contained on page
20 A-15 of the joint claim construction statement under the
21 Comcast column?

22 A I do believe the structures that actually
23 perform the function are contained within what's
24 identified.

25 Q So there's more identified by Comcast than is

1 actually necessary to perform the function; is that
2 correct?

3 A Yes.

4 Q Comcast's statement of structure doesn't
5 actually point out exactly which structures are
6 necessary to perform the function recited in the means
7 for establishing limitation of claim 6; is that right?

8 A The structures are there in what's listed.

9 Q I know, but the listing doesn't actually
10 identify which ones they are, does it?

11 A The structures, like I say, that actually
12 perform the function are a subset of what's listed
13 there.

14 Q But the subset is not identified on this list,
15 is it?

16 MR. WERDEGAR: Objection to form. Leading.

17 THE WITNESS: You don't see it called out
18 specifically.

19 BY MR. KOLODNEY:

20 Q So if -- someone reading this would not know,
21 merely from reading it, what structures you had in mind,
22 would they?

23 MR. WERDEGAR: Objection to form. Leading.

24 THE WITNESS: Well, again, I guess this column
25 is Comcast's proposed constructions, you know, it

1 wasn't -- you know, I gave my opinions but it wasn't my
2 proposed construction.

3 BY MR. KOLODNEY:

4 Q I'm not blaming you, but you agree that what's
5 written here is not what you believe is actually the
6 correct corresponding structure; right?

7 MR. WERDEGAR: Objection to form. Leading.

8 THE WITNESS: I would just say that what's here
9 is more than what's actually performing the function.

10 THE VIDEOGRAPHER: Counsel, ten minutes.

11 MR. KOLODNEY: Okay.

12 Q Dr. Bims, have you read the '627 patent and
13 understand what it discloses?

14 A Back to the '627. Yes, I've read the '627
15 patent.

16 Q Do you understand the claim language in the
17 '627 patent?

18 MR. WERDEGAR: Objection to form.

19 THE WITNESS: I have read through it.

20 BY MR. KOLODNEY:

21 Q Do you believe you understand it?

22 MR. WERDEGAR: Objection to form.

23 THE WITNESS: From an engineer's perspective, I
24 have some understanding of what the claims are saying.

25 BY MR. KOLODNEY:

1 memory elements that comprise the state to clock -- to
2 sample and store a new value into it.

3 Q Okay. So in order for a trellis encoder to
4 output a value, there needs to be a state change; right?

5 A For each new value that is output from the
6 trellis encoder, there needs to be a new state change.

7 Q Okay.

8 THE VIDEOGRAPHER: Counsel, you have two
9 minutes.

10 MR. KOLODNEY: Let's take a break.

11 THE VIDEOGRAPHER: Okay. This is the end of
12 Videotape No. 3. We are now going off the video record.
13 The time is 5:04 p.m.

14 (Interruption in the proceedings.)

15 THE VIDEOGRAPHER: This is the beginning of
16 Videotape No. 4. We are now back on the video record.
17 The time is 5:07 p.m.

18 BY MR. KOLODNEY:

19 Q So, Dr. Bims, under your construction of
20 trellis-encoded channel symbol, the trellis-encoded
21 channel symbol cannot be generated from multiple outputs
22 of a trellis encoder; is that correct, multiple
23 successive outputs of a trellis encoder?

24 A A trellis-encoded channel symbol is from one
25 output of a trellis encoder, yes.

1 Q Under your construction --

2 A Yes.

3 Q -- of trellis encoder channels?

4 Now, your construction of a signal point is a
5 single mapped point in a signal constellation; is that
6 your construction of signal point?

7 A Yes.

8 Q Okay. Can a single mapped point in a signal
9 constellation be a point in a one-dimensional signal
10 constellation?

11 A Yes.

12 Q Are you familiar with VSB?

13 A Vestigial sideband?

14 Q Yes.

15 A Yes.

16 Q Does VSB have a one-dimensional signal point
17 constellation?

18 A You can think of it in that context if you
19 want.

20 Q That's a acceptable usage of the term "signal
21 point" and "constellation"?

22 A Yes.

23 Q Now, you've been identified as having an
24 opinion on the meaning of the -- sorry, I missed one.
25 Do you have an opinion about the meaning of distributed

1 A Some have.

2 Q Okay. Do you agree that you could implement
3 the Viterbi decoders described in this patent in a
4 single software program that, through the use of
5 indirect addressing of multiple arrays within memory,
6 would serve to provide the function of the multiple
7 trellis encoders disclosed in Figure 4 of the patent?

8 MR. WERDEGAR: Objection. Beyond the scope of
9 his expert designation.

10 BY MR. KOLODNEY:

11 Q Do you think that's within the skill in the
12 art?

13 A It's possible. It's possible.

14 Q Is it within the skill of a person of ordinary
15 skill in the art to do that?

16 A I'm sure a person of ordinary skill in the art,
17 if pressed, could implement such a thing.

18 Q After reading this patent?

19 A Yes.

20 Q Okay. And there's certainly no ambiguity that
21 the patent is teaching that that's an alternative way to
22 implement the invention; right?

23 MR. WERDEGAR: Objection. Beyond the scope,
24 leading, form.

25 THE WITNESS: I would say that this is an

1 embodiment of one way of implementing what it's talking
2 about here.

3 BY MR. KOLODNEY:

4 Q So implementing the Viterbi decoders with a
5 single program routine is one embodiment of the
6 invention of the '627 patent; right?

7 MR. WERDEGAR: Objection. Beyond the scope.

8 THE WITNESS: At least that's what's presented
9 in this column.

10 BY MR. KOLODNEY:

11 Q Okay. Now, on the means for deinterleaving
12 limitation in claim 9 of the '627 patent, if you turn to
13 page A-5 of the -- I forget what exhibit number it is --
14 the first amended joint claim construction and
15 prehearing statement. What exhibit is that?

16 A 13.

17 Q 13. Okay. Look at page A-5 of Exhibit 13.
18 You see there the Comcast position on the function and
19 structure corresponding to the means for deinterleaving
20 limitation of claim 9?

21 A Yes.

22 Q Okay. And have you reviewed this prior to
23 today?

24 A Yes, I have.

25 Q And did you agree that all of the structures

1 identified in -- by Comcast as being the corresponding
2 structure are necessary to perform the function recited
3 in this means limitation?

4 A Well, there were some structural elements that
5 I thought were not absolutely required.

6 Q Which ones were those?

7 A Looking at block 431 --

8 Q Um-hmm.

9 A -- is not required for deinterleaving of the
10 interleaved signal points.

11 Q Anything else?

12 A And that appears to be all.

13 Q What does deinterleaving mean?

14 A Deinterleaving means that it's a process that
15 reverses the process of interleaving.

16 Q Would you agree that any structure that
17 reversed the interleaving process that was performed in
18 the transmitter, in Figure 3, would be sufficient to
19 perform the function of deinterleaving required by the
20 means for the deinterleaving limitation of claim 9?

21 MR. WERDEGAR: Objection to form. Leading.

22 THE WITNESS: Well, the claim 9 is talking
23 specifically about interleaved signal points, so
24 whatever deinterleaving is going on would have to be
25 deinterleaving, specifically the interleaved signal

1 points.

2 BY MR. KOLODNEY:

3 Q So once again, here, you believe that Comcast
4 has identified more structure than was necessary to
5 perform the function recited in the claim -- in the
6 means-plus-function claim limitation; is that correct?

7 A Yes. I think I mentioned block 431.

8 Q Did you point that out to Comcast when you
9 reviewed this document the first time?

10 A I did mention to Comcast, when I saw this joint
11 claim construction document, about block 431.

12 Q Did you review this document before it was
13 filed with the court on November 14th, 2006?

14 A I did look through it.

15 Q And did you point out to Comcast that they
16 identified too much structure as corresponding to the
17 means for deinterleaving in claim 9 of the '627 patent?

18 A I disclosed that to them after this document
19 was filed.

20 Q Well, why didn't you disclose it before it was
21 filed?

22 A When I read through this element, I think I
23 overlooked 431.

24 Q And similarly, with respect to the means
25 limitations of the '631 patent that you now say

1 each time -- each clock cycle by 315; does that sound
2 right to you?

3 A Yes, it does.

4 Q Okay. Those 9 bits are used to generate one
5 channel symbol in the system; right?

6 A Yes, that's correct.

7 Q Okay. So each channel symbol in the system
8 corresponds to these 9-bit chunks that are spit out by
9 the serial-to-parallel converter each time there's a
10 clock tick?

11 A Those 9 bits are used in generating that
12 symbol.

13 Q So the channel symbol, in essence, represents a
14 coded version of those 9 bits; is that correct?

15 MR. WERDEGAR: Objection to form. Leading.

16 (Interruption in the proceedings.)

17 THE WITNESS: So those 9 bits are run through a
18 variety of elements here before the output 325.

19 BY MR. KOLODNEY:

20 Q Right. But each channel symbol on line 325
21 corresponds to that set of bits that are spit out by the
22 serial-to-parallel converter each time it's triggered by
23 the clock signal; right, by the symbol clock?

24 A It's a function of those 9 bits, among other
25 things, yes.

Exhibit 27


**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

 Address : COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

07/24/89 09/26/88 KING

J 2289-122

 JOSEPH C. SULLIVAN
711 THIRD AVENUE
NEW YORK, NY 10017

HSU:PA

253

11
10/18/89
☐ This application has been examined ☒ Responsive to communication filed on 9-5-89 ☐ This action is made final.

 A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133
Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-18 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 2-4 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 5-18 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☒ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received
☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 8-88)

REM 0056105

Serial No. 249,450

-2-

Art Unit 263

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an enabling disclosure of the invention.

In the specification, it is unclear as to what "half duplex polled protocols" and "baseband regenerative modulation" are. It would be helpful for the applicant to supply prior art which does the teaching of the above if they are well known in the art.

2. Claims 6-13, 16 & 18 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the above objection to the specification.

3. Claims 1, 5-14, 17 & 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 13 & 14, "said time slots", each lacks antecedent basis.

In claims 8-10, it is unclear as to what operating parameters refer to. Are they referring to timing signals?

In claim 10, it is unclear as to how operating parameters are indexed and advanced.

Serial No. 249,450

-3-

Art Unit 263

In claim 12, it is unclear as to how communication is encoded using baseband regenerative modulation.

In claim 14, line 3, "said reservation request bits" should be recited as "said reservation request bit".

In claim 18, line 2, "the aggregate port rate" lacks antecedent basis.

Also, for the apparatus claims, it is unclear as to where the claimed elements are located and how the claimed elements are connected to one another; specifically, the master network timing means, ranging means, reservation request generator, reservation request processor and means for calculating clock drifts.

4. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

5. Claims 1, 7, 11, 13-18 are rejected under 35

U.S.C. 103 as being unpatentable over Sperlich.

Sperlich discloses a communication network

REM 0056107

Serial No. 249,450

-4-

Art Unit 263

comprising a master unit and a plurality of remote units wherein the master unit including a timing means which divides period into time slots and a ranging means which calculates transmission time as in claims 1, 13, 14, 17 & 18. He also discloses a method for a plurality of remote units to communicate with a master unit utilizing the above claimed elements as in claims 15 & 16. But he fails to disclose the execution of application program by each of the remote units as in claims 1, 13 & 15. The execution of application program by remote unit in a communication network are well known in the art. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use remote unit to execute application program to communicate with the master unit since the communication between master unit and remote unit by the execution of application program for the information exchange is commonly used in communication network system. He also fails to disclose the data is in either analog or digital form as in claims 7 & 11.

The communication forms - analog and digital are well known in the art. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize these communication forms in the network system since they are well known forms usable in communication network system.

6. Claims 5 & 6 are rejected under 35 U.S.C. 103 as being unpatentable over Sperlich in view of Akashi et al.

Serial No. 249,450

-5-

Art Unit 263

Sperlich fails to disclose a reservation request scheme from remote units to master unit as in claims 5 & 6. Akashi et al from the same field of endeavor teaches the reservation request scheme from remote units to master unit for the purpose of requesting the reservation on the multiple access channel in response to the polling signal. Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the reservation request scheme in Sperlich for the purpose of requesting the reservation on the multiple access channel in response to the polling signal.

7. Claims 8-10 are rejected under 35 U.S.C. 103 as being unpatentable over Sperlich and Akashi et al as applied to claims 1, 5-7, 17-18 above, and further in view of Betts et al.

Sperlich and Akashi et al. fail to disclose an equalizer and an automatic gain controller in the master as in claims 8-10. Betts et al. from the same field of endeavor teaches an equalizer and an automatic gain controller in master unit for the purpose of equalizing and adjusting the gain of the received signals. Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the equalizer and the automatic gain controller in Sperlich for the purpose of equalizing and adjusting the gain of the received signals.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Serial No. 249,450

-6-

Art Unit 263

Yamanaka et al. teach a method for synchronizing the times of a master clock provided in the master station and slave clocks provided in the slave stations in a data transmission system.

Aoki et al. teach a synchronization control capable of establishing synchronization without transmission of distance information between control and local earth stations in a TDMA satellite communication network.

Shinmyo teaches a multidirection multiplex communication system for improving the transmission efficiency by utilizing a demand assignment protocol.

Meuriche et al. teach an automatic gain control method and circuit for a time division multiple access receiver for receiving signals such as satellite transmissions or microwave beam signals.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alpus H. Hsu whose telephone number is (703) 557-6897.

Any inquiry of a general nature, or relating to the status of this application, should be directed to the Group receptionist whose telephone number is (703) 557-3321.

A.H.HSU:rf AHH

703-557-6897

10/13/89



DOUGLAS W. OLMS
PRIMARY EXAMINER
GROUP 263

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP-APART AND DISCARD CARBON

FORM PTO-892 (REV. 3-78)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		SERIAL NO. 249450	GROUP/ART UNIT 263	ATTACHMENT TO PAPER NUMBER 11			
NOTICE OF REFERENCES CITED				APPLICANT King					
U.S. PATENT DOCUMENTS									
*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE		
A		4644534	2/17/87	Sperlich	370	95	—		
B		4807259	2/21/89	Yamanaka et al.	370	85	5/18/89		
C		4800560	1/24/89	Aoki et al.	370	104	3/13/89		
D		4653049	3/24/87	Shinmyo	370	95	—		
E		4757502	7/12/88	Meutiche et al.	370	104	—		
F									
G									
H									
I									
J									
K									
FOREIGN PATENT DOCUMENTS									
*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG.	PP. SPEC.
L									
M									
N									
O									
P									
Q									
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)									
R									
S									
T									
U									
EXAMINER R. G. 27. 2/2/89				DATE 10/4/89					
* A copy of this reference is not being furnished with this office action. (See Manual of Patent Examining Procedure, section 707.05 (a).)									

Exhibit 28



US006259911B1

(12) **United States Patent**
Bims et al.

(10) **Patent No.:** **US 6,259,911 B1**
 (45) **Date of Patent:** ***Jul. 10, 2001**

(54) **NETWORK OPERATIONS CENTER
 HARDWARE AND SOFTWARE DESIGN**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(75) Inventors: **Harry V. Bims**, Palo Alto; **Donna Brown**, Campbell, both of CA (US)
 (73) Assignee: **Wireless Access**, Santa Clara, CA (US)
 (*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

4,875,038 * 10/1989 Siwiak et al. 340/825.44
 4,977,399 * 12/1990 Price et al. 455/424
 5,170,487 * 12/1992 Peek 455/45
 5,451,839 * 9/1995 Rappaport et al. 375/224
 5,619,550 * 4/1997 Averbuch et al. 379/5
 5,742,590 * 4/1998 Lin et al. 370/252
 5,754,946 * 5/1998 Cameron et al. 455/38.1
 5,799,012 * 8/1998 Ayerst et al. 370/336
 5,892,442 * 4/1999 Ozery 340/539
 5,974,238 * 10/1999 Chase, Jr. 709/248

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

* cited by examiner

Primary Examiner—Nay Maung

Assistant Examiner—Temica M. Davis

(74) *Attorney, Agent, or Firm*—Blakely, Sokoloff, Taylor & Zafman LLP

(21) Appl. No.: **09/003,260**

(22) Filed: **Jan. 6, 1998**

(51) **Int. Cl.**⁷ **H04Q 7/00**; H04Q 9/00

(52) **U.S. Cl.** **455/423**; 455/67.1; 455/67.4;
 455/424; 455/425; 455/31.3

(58) **Field of Search** 455/31.3, 558,
 455/115, 67.1–67.7, 226.1–226.4, 423,
 38.1, 424; 379/93.31, 27, 29; 714/742;
 370/466, 467, 241, 252, 313, 314; 340/825.44

(57) **ABSTRACT**

A network operations center comprised of hardware and software that tests paging devices, such as two-way paging devices to determine that they conform to a specified protocol.

21 Claims, 15 Drawing Sheets

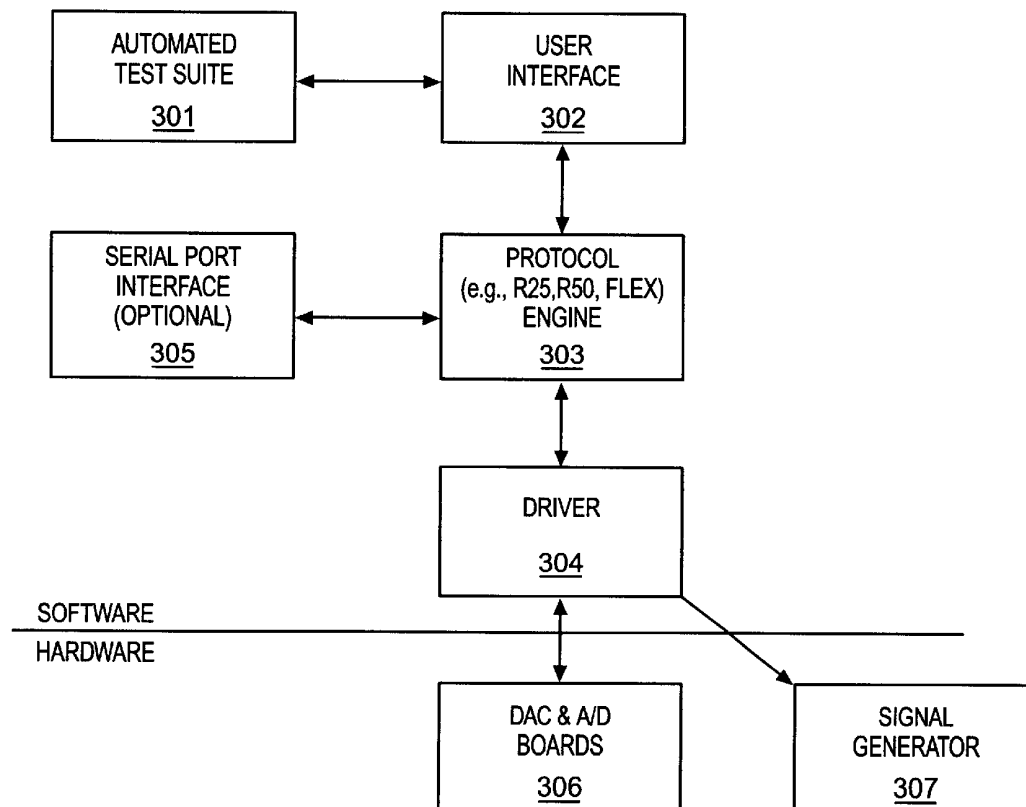


FIG. 1

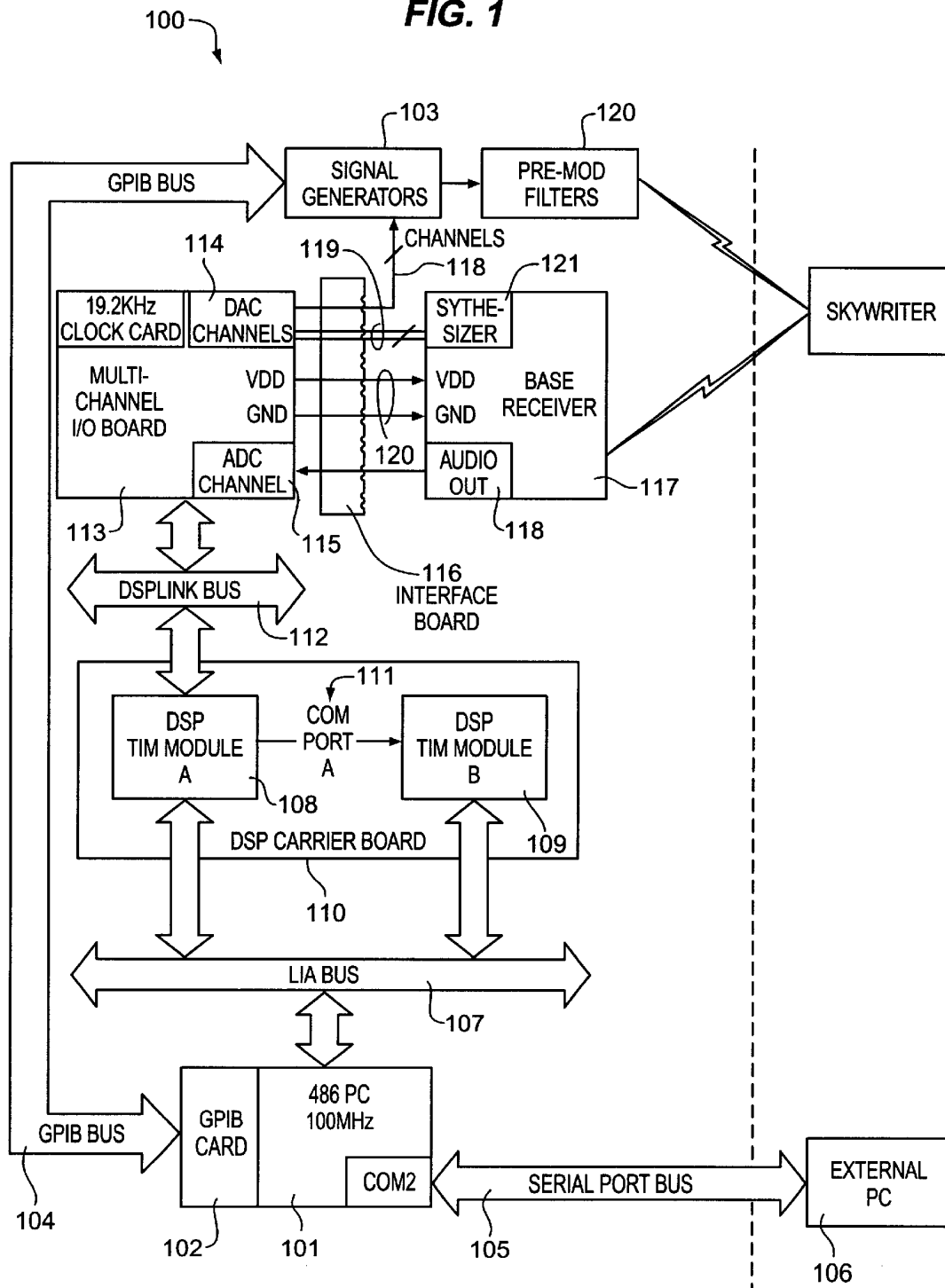


FIG. 2

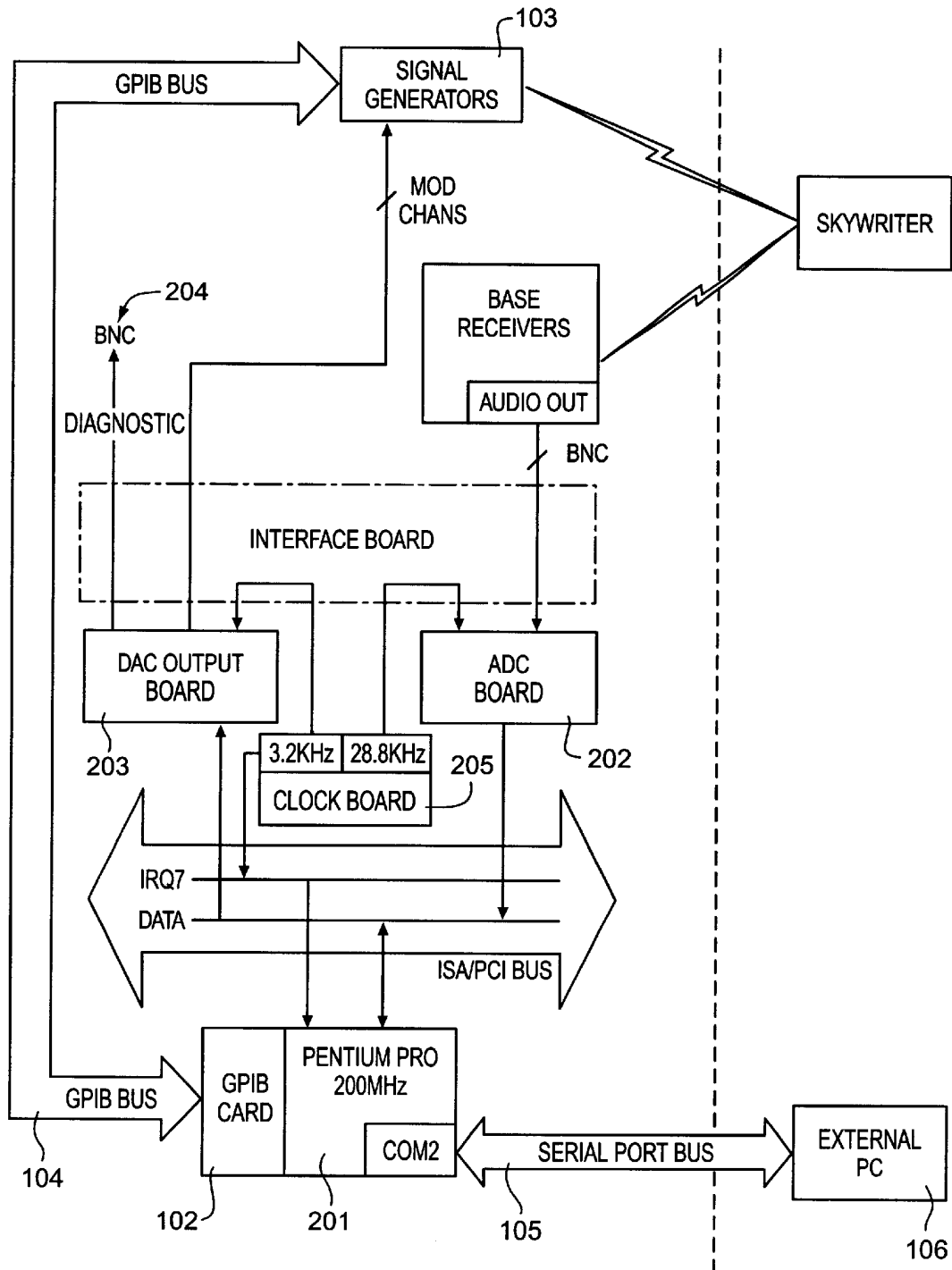


FIG. 3

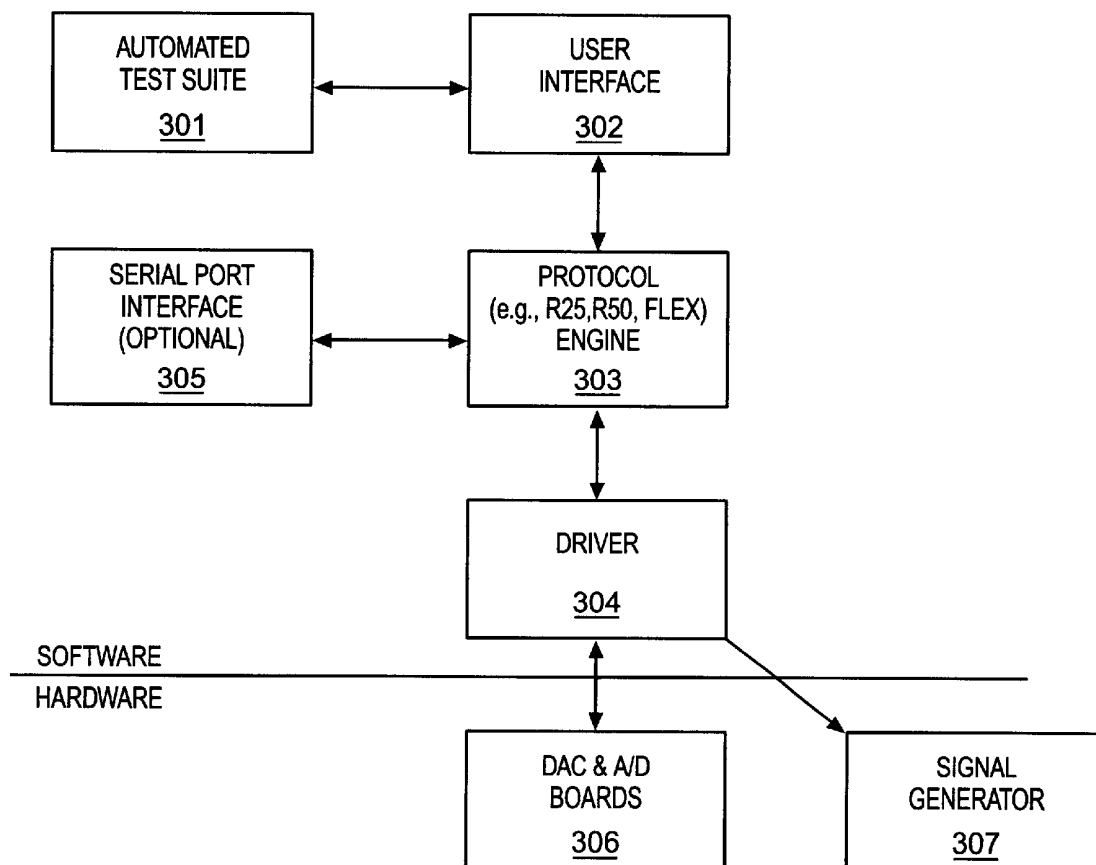


FIG. 4

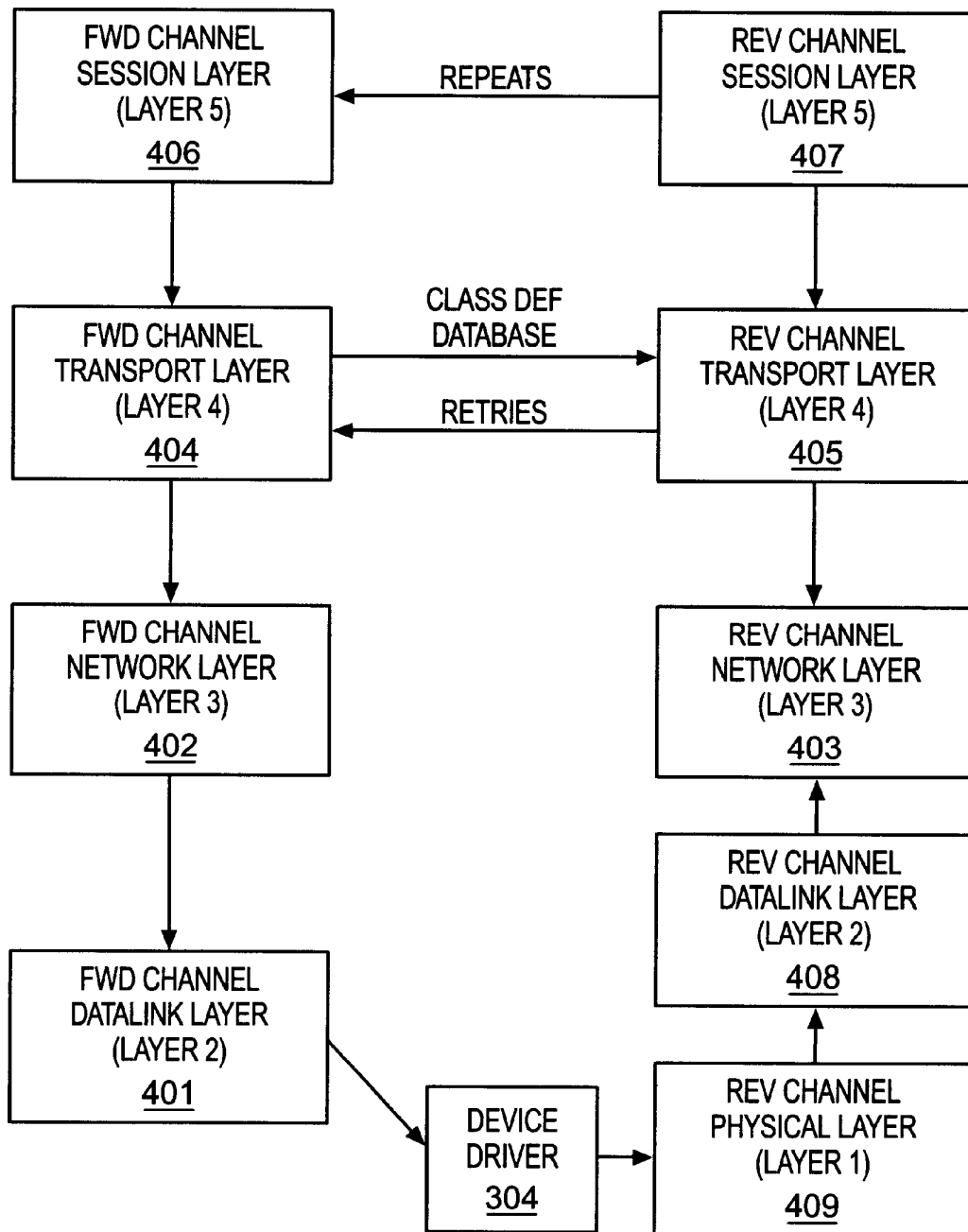
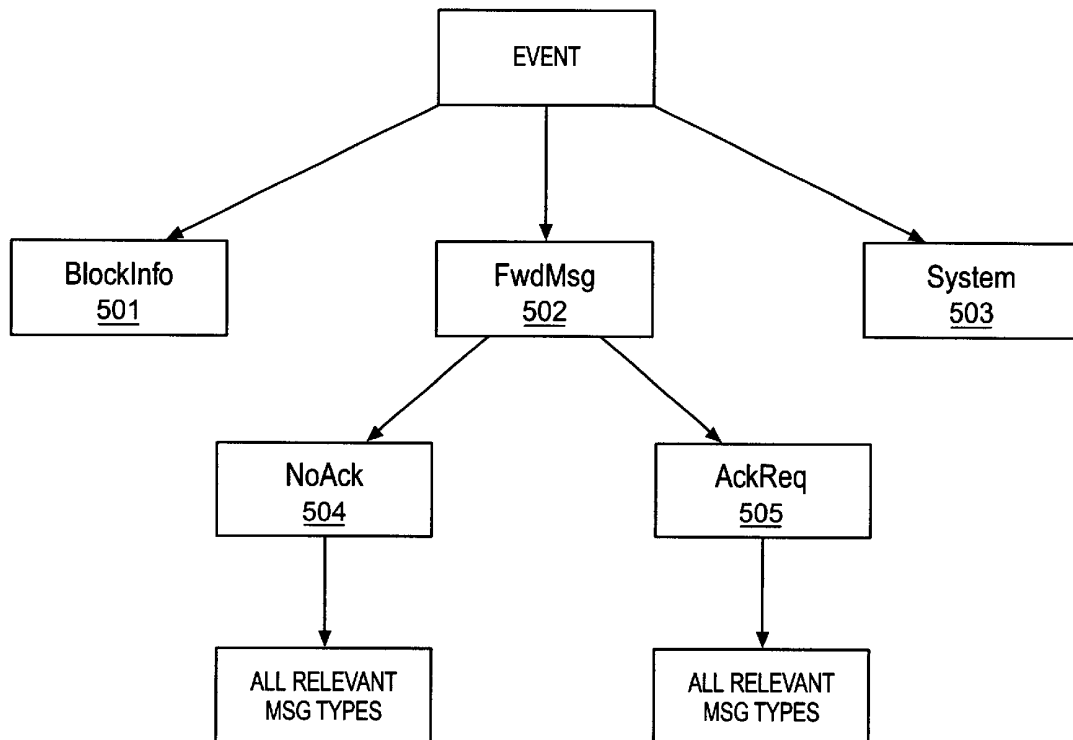


FIG. 5



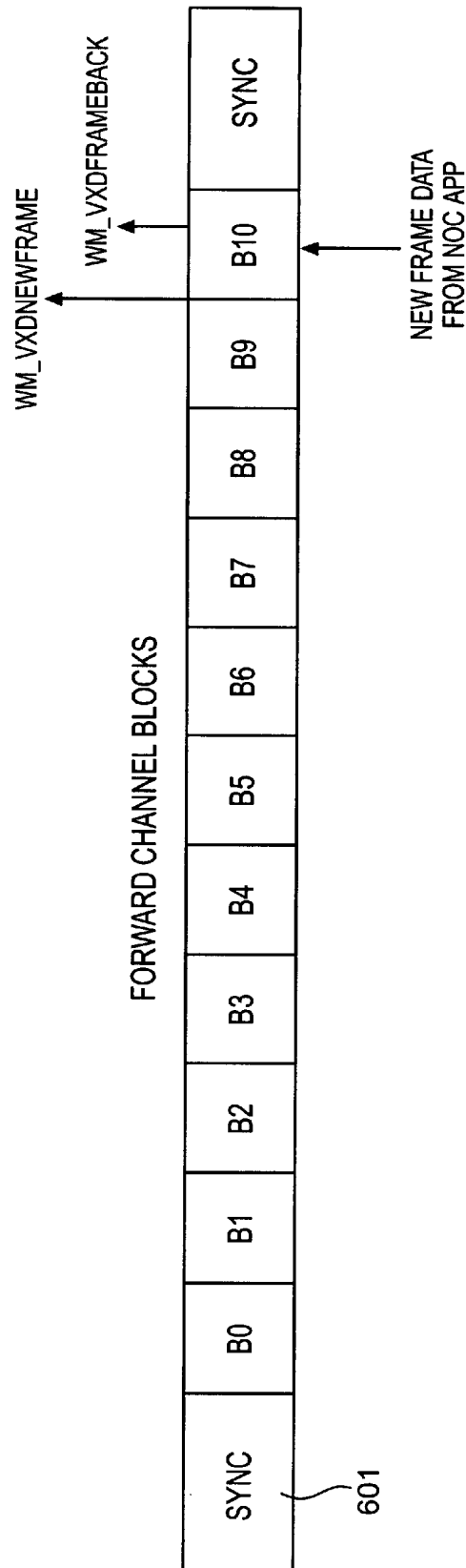


FIG. 6

REVERSE CHANNEL SLOTS

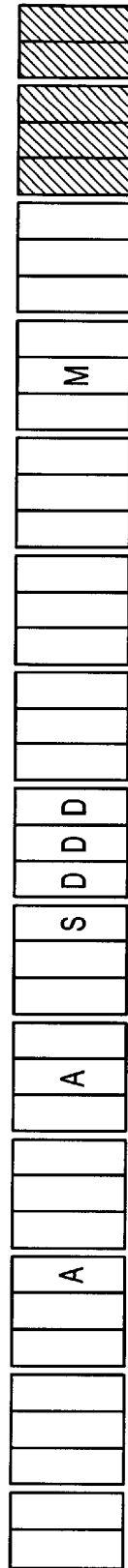


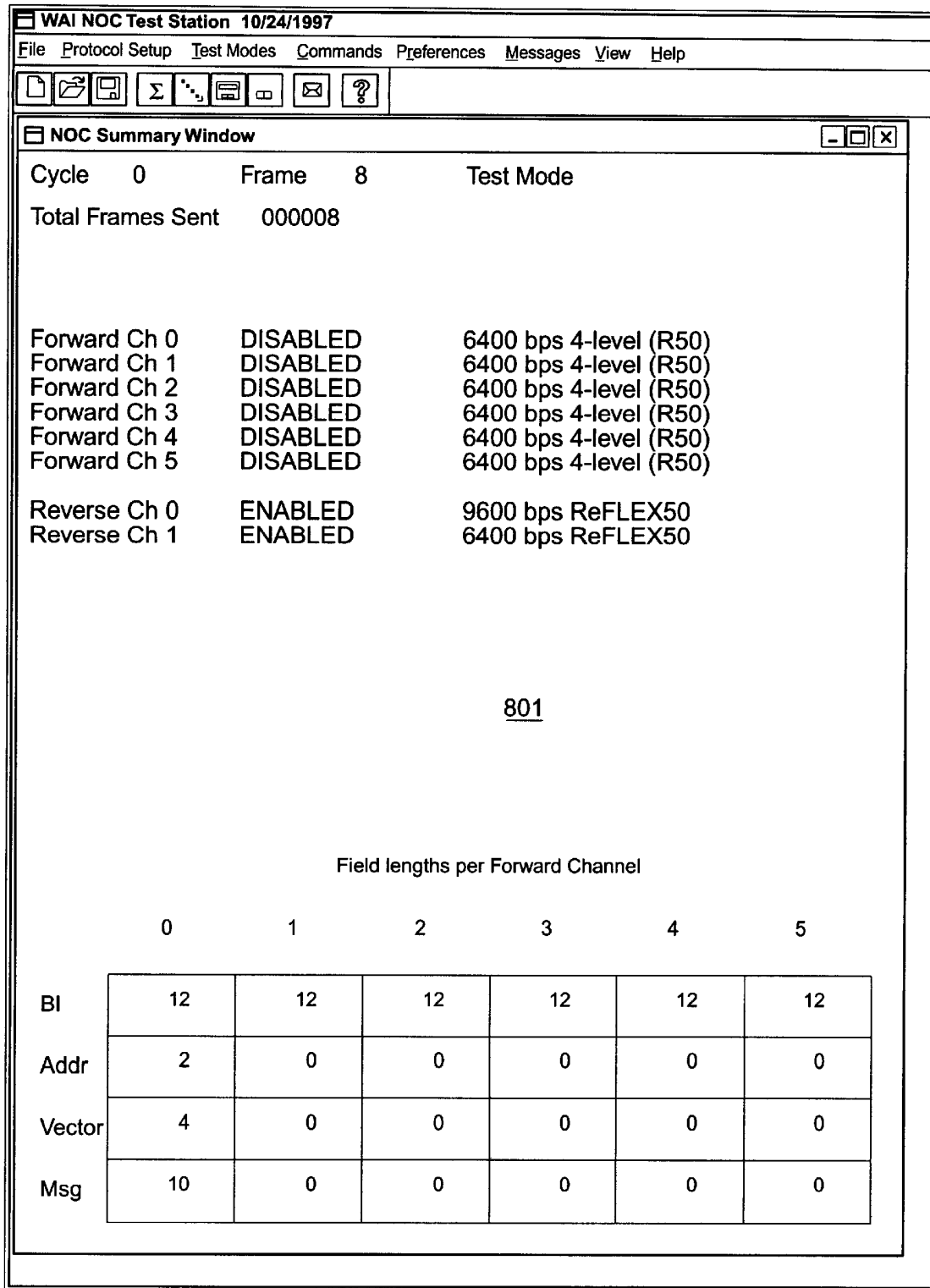
FIG. 7

U.S. Patent

Jul. 10, 2001

Sheet 8 of 15

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**FIG. 8A**

U.S. Patent

Jul. 10, 2001

Sheet 9 of 15

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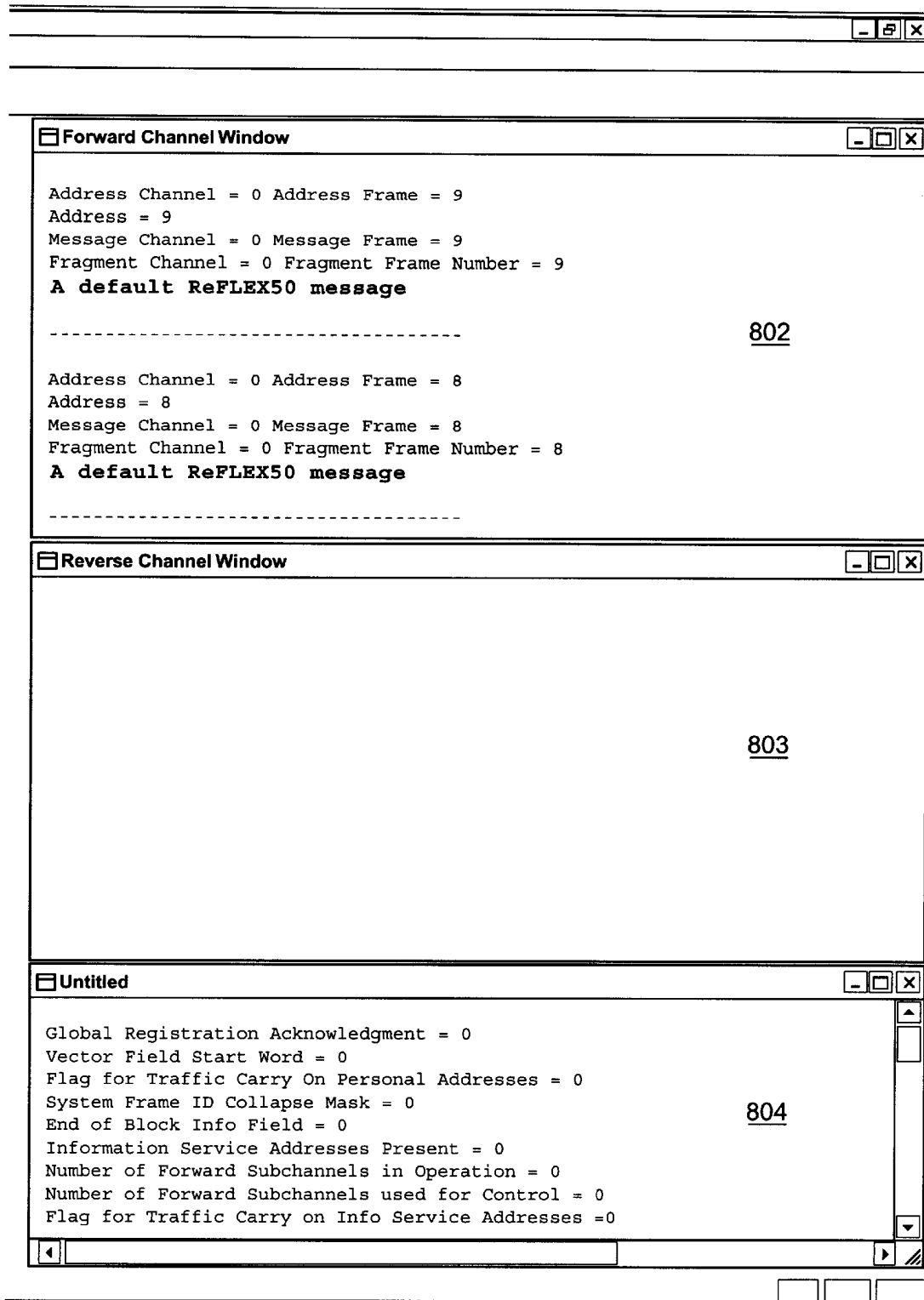


FIG. 8A-1

Forward Channel Tests [X]

Frame Speed Channel Number

Error Patterns:

A	<input type="text" value="0"/>	A Bar	<input type="text" value="0"/>
C	<input type="text" value="0"/>	C Bar	<input type="text" value="0"/>

Frame Information Word

B Bit Color Patterns

OK Cancel

FIG. 8B

Select a detailed view for a R50 Block Information Words
✕

Double click on an empty square in the tree control to select the specific block information word. A check mark means the block information word is selected.

To change a value, point to the item in the tree control and then point or tab to the edit box and then type in a new value.

☒

Block Info Word 0

☒ Block Info Word 1

☐ FDD Ch 0 Config. Info

☐ FDD Ch 1 Config. Info

☐ FDD Ch 2 Config. Info

☐ FDD Ch 3 Config. Info

☐ FDD Ch 4 Config. Info

☐ FDD Ch 5 Config. Info

☐ FDD Ch 6 Config. Info

☐ FDD Ch 7 Config. Info

☐ Aloha Time-Out Period - 0

☐ Zone ID - 0

☐ Local Channel ID - 0

☐ Date and Day

☐ Month and Year

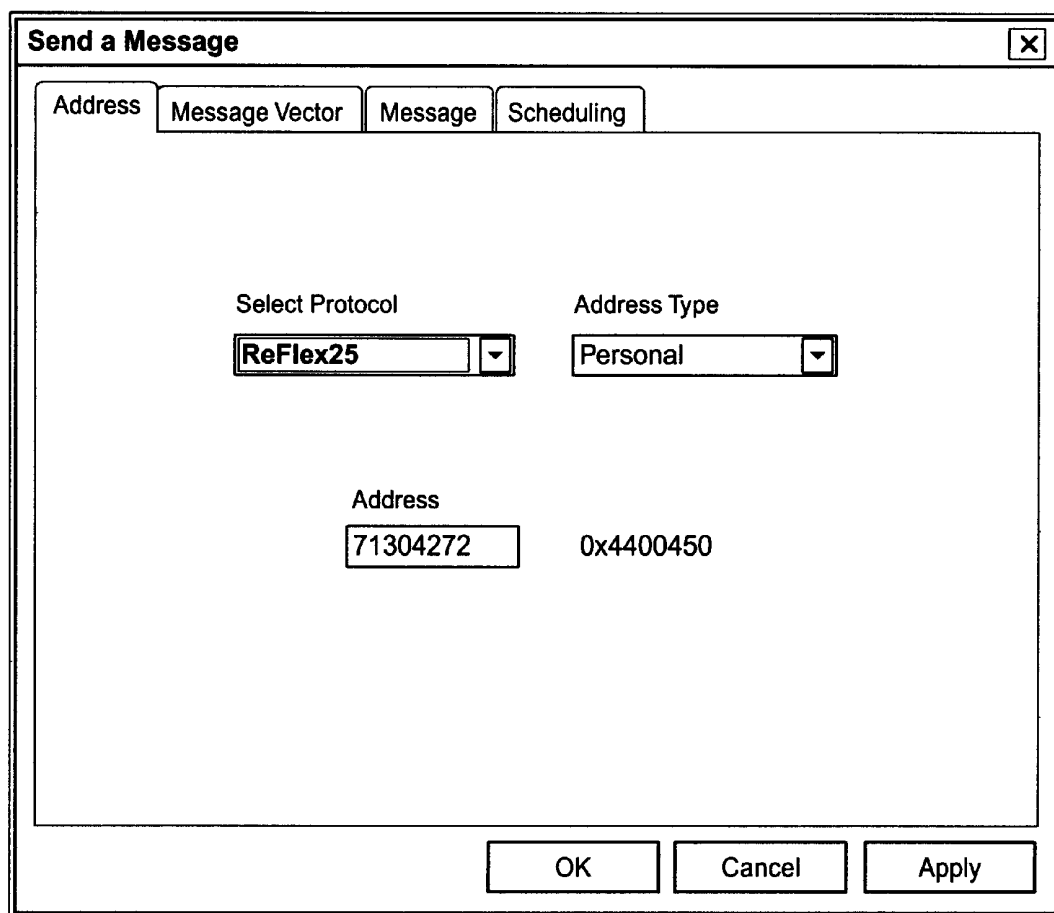
☐ Hour and Minute

☐ Time Zone

Value for block information word:

Channel Number:

FIG. 8C



The image shows a graphical user interface window titled "Send a Message". The window has a standard Windows-style title bar with a close button (X) in the top right corner. Below the title bar is a tabbed interface with four tabs: "Address", "Message Vector", "Message", and "Scheduling". The "Address" tab is currently selected. The main content area of the dialog contains two dropdown menus. The first is labeled "Select Protocol" and has "ReFlex25" selected. The second is labeled "Address Type" and has "Personal" selected. Below these, there is a label "Address" followed by two text input fields. The first field contains the number "71304272" and the second field contains the hexadecimal value "0x4400450". At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Apply".

FIG. 8D

Send a Message

Address Message Vector Message Scheduling

Select the type of message:

- Standard Numeric(No Response)
- Numeric Vector with Response
- Short Message/Tone Only
- HEX/Binary (Single Subchannel)
- HEX/Binary (Multiple Subchannel)
- Alphanumeric (Single Subchannel)**
- Command to PMU(Location Query)
- Secure Message (OTAP)

Select the type of Ack:

- No ACKS
- 1st Ack ALOHA, No 2nd ACK
- 1st Ack scheduled, No 2nd ACK
- 1st Ack scheduled, 2nd ACK ALOHA

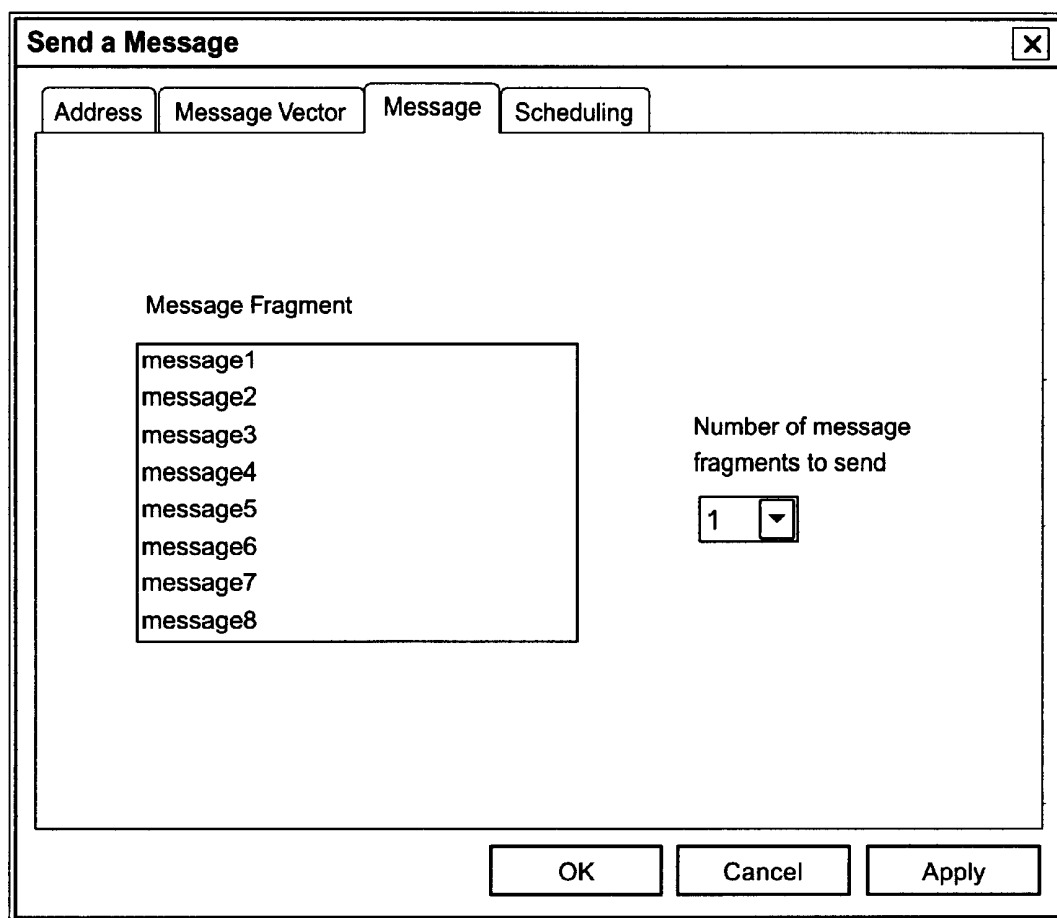
☐ MCR

☐ Canned Message

☐ Unprintable ASCII character

OK Cancel Apply

FIG. 8E



The image shows a graphical user interface window titled "Send a Message". The window has a standard Windows-style title bar with a close button (X) in the top right corner. Below the title bar, there are four tabs: "Address", "Message Vector", "Message", and "Scheduling". The "Message" tab is currently selected. Inside the window, there is a large rectangular area. On the left side of this area, the text "Message Fragment" is displayed above a list of eight items: "message1", "message2", "message3", "message4", "message5", "message6", "message7", and "message8". To the right of this list, the text "Number of message fragments to send" is displayed above a small numeric input field containing the number "1" and a downward-pointing arrow, indicating a dropdown menu. At the bottom of the window, there are three buttons: "OK", "Cancel", and "Apply".

FIG. 8F

Send a Message [X]

Address Message Vector Message Scheduling

☐ Retry Message 0 Message Channel

Message Frame Offset 0

☒ Manual Reverse Channel Scheduling

Reverse Channel Slot Number 35

OK Cancel Apply

FIG. 8G

US 6,259,911 B1

1

NETWORK OPERATIONS CENTER HARDWARE AND SOFTWARE DESIGN

FIELD OF THE INVENTION

The present invention relates to the field of communications systems, such as paging systems; more particularly, the present invention relates to systems for testing communications devices, such as paging devices.

BACKGROUND OF THE INVENTION

Today, communications devices, such as paging devices undergo testing to determine whether they conform to the particular communication protocol. In the case of paging systems, there are three typically used protocols referred to as FLEX™, ReFLEX50™ and ReFLEX25™ protocols. In the prior art, protocol conformance testing is performed by one-way paging systems, and thus, only one-way devices (i.e., devices only capable of receiving paging messages, not transmitting paging messages) are tested. In the prior art, the testing is performed by a protocol encoder, which acts as a signal generator to simulate a one-way paging protocol by encoding a single outbound channel for the one-way paging device. The paging device is connected to the encoder to undergo testing. During testing, the one-way paging device could be tested for compliance to the protocol through a series of messaging scenarios.

However, newer protocols allow for two-way paging. In two-way paging, the paging network transmits and receives simultaneously, and the paging device must be tested for both receiving and transmitting. Therefore, the encoders used for testing one-way paging devices are not sufficient. Furthermore, the testing of two-way paging devices is more complicated because the protocols typically include acknowledgment or message receipt transmission, as well as message origination from the paging device. Also, the two-way paging protocols often support use of multiple channels. That is, the paging device can be made to switch communication frequencies. Each feature of the protocols for two-way paging is tested, and since paging devices receive on multiple frequencies, the tester must transmit on multiple frequencies. Therefore, a new testing system is needed to handle testing of two-way paging devices. The present invention provides such a testing system.

SUMMARY OF THE INVENTION

A system providing a multi-channel wireless communications testing environment is described. In one embodiment, the system includes a transmitter, a receiver and a protocol engine. The protocol engine is interfaced to the transmitter and receiver. The protocol engine sends information to and receives information from a two-way communication device, respectively, to test the two-way communication device for compliance with multiple communication protocols.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood more fully from the detailed description given below and from the accompanying drawings of various embodiments of the invention, which, however, should not be taken to limit the invention to the specific embodiments, but are for explanation and understanding only.

FIG. 1 is a block diagram of one embodiment of a network operations center hardware architecture.

FIG. 2 is a block diagram of another embodiment of a network operations center hardware architecture.

2

FIG. 3 is an overview of one embodiment of a software architecture of a network operations center of the present invention.

FIG. 4 illustrates an OSI decomposition of one embodiment of a protocol engine of the present invention.

FIG. 5 illustrates one embodiment of an object decomposition of protocol-specific protocol engine objects.

FIG. 6 illustrates outbound channel message passing.

FIG. 7 illustrates inbound channel packet transmission.

FIGS. 8A–8G illustrate a user interface.

DETAILED DESCRIPTION OF THE INVENTION

A system for testing communication devices is described. In the following description, numerous details are set forth, such as types of protocol, numbers of channels, coding types, etc. It will be apparent, however, to one skilled in the art, that the present invention may be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form, rather than in detail, in order to avoid obscuring the present invention.

Some portions of the detailed descriptions which follow are presented in terms of algorithms and symbolic representations of operations on data bits within a computer memory. These algorithmic descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussions, it is appreciated that throughout the present invention, discussions utilizing terms such as “processing” or “computing” or “calculating” or “determining” or “displaying” or the like, refer to the action and processes of a computer system, or similar electronic computing device, that manipulates and transforms data represented as physical (electronic) quantities within the computer system’s registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

The present invention also relates to apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, and magneto-optical disks, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, or any type of media suitable for storing electronic instructions, and each coupled

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to a computer system bus. The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general purpose machines may be used with programs in accordance with the teachings herein, or it may prove convenient to construct more specialized apparatus to perform the required method steps. The required structure for a variety of these machines will appear from the description below. In addition, the present invention is not described with reference to any particular programming language. It will be appreciated that a variety of programming languages may be used to implement the teachings of the invention as described herein.

Overview

The Network Operations Center (NOC) provides a mechanism for creating a multi-channel wireless communications environment to test paging devices (e.g., pagers). In one embodiment, the NOC system of the present invention provides a testing environment with a single platform to perform engineering testing, manufacturing testing, and application testing. The engineering testing that the NOC provides may be used to test pager software and/or hardware, such as testing, for example, an antennae or a radio frequency (RF) designs. Manufacturing testing provided by the NOC is used to test pager operation in sending and receiving messages or other information, such as for example, acknowledgments. The manufacturing testing also tests paging devices that have undergone rework or repair. Application testing allows the NOC to provide a test platform for testing application designs for one-way or two-way paging. Thus, the network operation system of the present invention provides a testing environment for paging that includes one platform that accommodates engineering testing, manufacturing testing and application testing.

In one embodiment, the system includes a transmitter, a receiver, and a protocol engine. The protocol engine is interfaced to the transmitter and receiver and may send information to and receive information from a two-way communication device, to test the two-way communication device for compliance with multiple communication protocols. A user interface provides access to and control of the NOC and its protocol engine to facilitate the testing in the three main areas of engineering testing, manufacturing, and application testing.

In one embodiment, the protocol engine comprises software being executed on hardware, allowing the NOC to support multiple protocols concurrently. These protocols can be used on multiple channels at the same time or can be combined on a single channel. In one embodiment, these protocols include FLEX™, REFLEX25™ and REFLEX50™. In one embodiment, the protocol engine controls multiple (e.g., 4, 6, etc.) forward channels simultaneously. In the case of REFLEX™, this allows it to transmit multiple channels of the REFLEX™ family. The ability to support multiple protocols concurrently, as well as multiple channels simultaneously allows for testing with adjacent channels that are of different protocols.

The present invention also provides an automated test suite environment that provides for two-way regression testing and allows for setting up and running of test scripts to two-way paging devices through the NOC.

Although the following description discusses applications of a network operations center for testing paging devices, features of the system may have applications beyond paging device testing and may be applicable to other communications devices and other systems such as data application testing over GSM, CDMA, or TDMA channels (PCS service testing).

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I. Hardware Architecture

In one embodiment, the multi-channel wireless communications environment supports the transmission and reception of the FLEX™, ReFLEX50™, and ReFLEX™25 protocols to facilitate testing of paging devices.

A. A Network Operations Center Hardware Design

One embodiment of the NOC is shown in FIG. 1. Referring to FIG. 1, NOC 100 comprises a computer system with a processor 101 contained in a rack mount chassis. In one embodiment, processor 101 is responsible for handling coordination of all testing performed by NOC 100. This coordination includes message generation and the processing of received messages. In one embodiment, processor 101 comprises a 100 MHz Intel 486 processor.

NOC 100 also includes a General Purpose Instrument Bus (GPIB) card 102 that is coupled to processor 101 and to a bus slot in the computer system. GPIB card 102 is a standard protocol card for test instruments. In one embodiment, the bus slot is an ISA bus slot, although other buses may be used. Through GPIB card 102, NOC 100 is able to control multiple generators 103 via external GPIB bus 104, setting frequency, power level, modulation, and the like. Control of signal generation using a GPIB card is well-known in the art. In one embodiment, GPIB card 102 controls 4 signal generators. Signal generators 103 modulate a data stream over the air via pre-modulation filters 120.

In one embodiment, an optional serial port bus 105 is provided to allow another computer system 106 to communicate with and control NOC 100. Computer system 106 may be a work station, personal computer, server-based computer system, etc. In one embodiment, computer system 106 is able to send and receive messages to wireless messaging devices by communicating with NOC 100 using a messaging protocol. Note that other systems may be coupled to NOC 100 through other parallel or serial ports included in NOC 100.

A special Link Interface Adapter (LIA) bus 107 facilitates communication between processor 101 and the two DSP processors 108 of 109 of NOC 100. DSP processors 108 and 109 reside on a DSP carrier board 110 in the form of 'TIM Modules'. In one embodiment, there are two such modules on the board, TIM Module A, and TIM Module B, although other embodiments may have more or less modules. DSP processors 108 and 109 handle the low level protocol activity. For example, in one embodiment, DSP processors 108 and 109 maintain strict timing for all transmitted and received channels. DSP processors 108 and 109 may also perform error correction on received data, and perform error encoding on transmitted data. There is an on-board Communications Port (COM port) 111 for communication between the modules. A DSPLINK bus 112 provides communication access between TIM Module A and a Multi-channel I/O board 113.

I/O board 113 has capability for accommodating one or more output Digital-to-Analog Converter (DAC) channels 114, as well as one or more Analog-to-Digital Converter (A/D) channels 115. In one embodiment, these channels operate continuously in parallel. In one embodiment, DAC channels 114 comprise 7 channels; however, any number of such DAC channels may be included in the system. In one embodiment, A/D channels 115 comprises a single 14-bit channel; however, the size and number of channels is selected to provide the requisite bandwidth.

The Interface Board 116 provides a connector mapping between the connector on the rear of I/O board 113 and the connectors required to interface to signal generators 103 and base receiver 117.

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DAC channels **118** are routed to signal generators **103** and control their FM Modulation deviation. In one embodiment, signal generators **103** drive the data transmission over the air in the 900 MHz band. In one embodiment, DAC channels **118** comprise four channels that are synchronously strobed from a common 19.2 KHz clock source on I/O board **113**. ADC channel **115** is strobed from the same clock source on DAC channel **118**. However, separate clock sources may be used. ADC channel **115** and DAC channel **115** are well-known in the art. Note that in one embodiment, the clock source also provides hardware interrupts to TIM Module A DSP processor **108**. Such interrupts are used to signal TIM Module A DSP processor to read sampled data in the ADC registers.

Base receiver **117** is a radio frequency (RF) receiver that receives data over the air from the pager and converts the information to a baseband signal. Base receiver **117** is tuned to a specific frequency within its bandwidth of operation by programming its synthesizer **121** to generate the correct local oscillator (LO) frequency. In one embodiment, base receiver **117** is capable of downconverting any ReFLEXTM inbound channel transmission in the 901–902 MHz band; however, base receiver **117** may be configured to downconvert an inbound channel transmission adhering to any protocol. The downconverted output is provided through the audio out port **118** and is routed to the input of the ADC channel **115**. ADC channel **115** may comprise one or more channels that sample the downconverted data and forward the sampled data onto processor **101** for processing.

DAC channels **119** are routed from Multi-channel I/O board **113** to provide the required clock, data, and strobe lines to program synthesizer **121**. DAC channels **119** may comprise any number of channels may be used, including one multiplexed channel. In one embodiment, DAC channels **119** comprises three channels.

Power (VDD) and ground (GND) lines **120** are also provided to base receiver **117** from Multi-channel I/O board **113**.

Alternative Network Operations Center Design

FIG. 2 is a block diagram of an alternate embodiment of the NOC of the present invention. The main benefits of this design are lower cost, fewer processors, increased performance, and higher reliability components.

Referring to FIG. 2, NOC **201** comprises processor **201**. In one embodiment, processor **201** comprises a 200 MHz Intel Pentium Pro **201**. The two DSP processors **108** and **109** have been eliminated, and their functionality absorbed into processor **201**. A multiple (e.g., 2) channel ADC board **202** and a multiple (e.g., 6) channel DAC output board **203** have replaced I/O board **113**, saving cost while increasing performance. In one embodiment, DAC output board **203** comprises two DAC channels **204** for diagnostic purposes. Any number of channels may be included in the system.

A clock board **205** provides clock signals to components of NOC **301**. In one embodiment, a first clock triggers both channels on the ADC board simultaneously. In one embodiment, the first clock comprises a 28.8 KHz clock. A second clock provides hardware interrupts to processor **201**, as well as a trigger source for the DAC output channels **203**. In one embodiment, the second clock comprises a 3200 HZ clock.

Base receivers **206** are RF receivers. In one embodiment, base receivers **206** does not have a synthesizer, but rather use a fixed frequency crystal oscillator. This eliminates the control lines for synthesizer programming. It also has its own external power supply (not shown), which eliminates the need for power lines as well.

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In one embodiment, the operating system of the NOC is a Windows 3.1 or NT operating system, sold by Microsoft Corporation of Redmond, Washington.

Although not shown, each system includes or has access to one or more memories. These memories may store information to run the system and may store database, such as class definition databases or automated test scripts described below. Also, although only one processor is shown, multiple processors or processing devices may be included in the NOC. Moreover, although multiple boards have been discussed above, many components may be included in a lesser number of boards or a greater number of boards.

II. Software Architecture

A. High-level Description

One embodiment of the software architecture of the NOC is described in FIG. 3. Although each block is described in terms of a software, one, more or all of these features and functions of these blocks may be implemented in hardware, such as, for example, hardwired logic.

Referring to FIG. 3, the software architecture comprises a set of blocks or modules, each of which may be autonomous. There is an Automated Test Suite (ATS) block **301** that creates message scenarios to be played back via the NOC hardware architecture. In one embodiment, ATS block **301** includes a file manager to coordinate accessing files, including opening, closing, saving, and deleting files which may be included in a database. ATS block **301** may provide a default scenario for testing one or more paging devices. In one embodiment, ATS block **301** allows users to create files that contain information for configuring the NOC and sending messages through the NOC. These files may be ASCII coded text files.

User interface **302** is a graphical user interface (GUI) that gives the user the capability to configure the NOC and send messages dynamically. Through user interface **302**, a user may select an ATS file and have the file sent onto protocol engine **303** (described below). For instance, user interface **302** allows entry of addresses of paging devices. User interface **302** allows the user to control protocol engine **303** by selecting a protocol that is being transmitted over the air, including the protocol speed and message types (alphanumeric, numeric, etc.). User interface **302** also provides a user the opportunity to obtain information (e.g., a “snapshot”) of what is happening in the NOC at any point in time. User interface **302** also allows a user to modify, change, replace and/or add data information such as, for example, parameters in an ATS file. In one embodiment, user interface **302** also allows a user to save a modified version of an ATS file. User interface **302** may be a Windows 3.1 or NT (4.0) GUI. An example of one particular interface is shown in FIG. 8A–8G.

Protocol engine **303** accommodates multiple protocols, including the coordination of message transmission with at least one paging device for one or more of the multiple protocols being tested by the NOC. In response to an ATS file, protocol engine **303** performs scheduling and transmitting for the selected protocol, including formatting the data properly. Protocol engine **303** sends new messages out to each paging devices. These messages may configure the paging device for such protocol specific features as indicating how often a message is sent, controlling the duty (collapse) cycles of a paging device, the date and time as message is sent, and which channel the paging devices is to listen to and at which time. In one embodiment, protocol engine **303** is a C++, object-oriented structure that accommodates the FLEX, ReFLEXTM 25, and ReFLEXTM 50 pro-

protocols. In another embodiment, an InFLEXion protocol may also be included or may replace one or more of the previously mentioned protocols, or other protocols may be included.

Device driver **304** is a block that interfaces to the NOC hardware, shown as DAC and A/D boards **306** and signal generator **307**. In one embodiment, device driver **304** comprises a Windows NT monolithic driver or other driver capable of performing a software-hardware interface. Device driver **304** performs calls to and returns from hardware in the NOC, which are based on the requirements of the hardware (e.g., boards) in the system. In another embodiment, device driver **304** comprises a virtual device driver.

Serial port interface block **305** is an optional interface that allows communication between the NOC and an external computer system or network. Serial port interface block **305** communicates with the remainder of NOC to facilitate this communication. Serial port interface **305** allows a user to bypass user interface **302** and control or program the NOC to set up a specific test or test environment. In one embodiment, serial interface port **305** is used to facilitate manufacturing testing.

In one embodiment, records are sent over the serial port interface **305** and comprise three portions, or fields, that include a record type field, a length of record field, and a data field. The record type may specify that the message type is a control message. Control messages include, for example, messages to control the power level of the paging device. Other message types include, but are not limited to, a message to specify a type (e.g., alphanumeric, numeric, and binary) or to communicate the collapsed value of a paging device (e.g., sleep or duty cycles of the paging device).

B. Protocol Engine

1. OSI Model for FLEX-family Protocols

The OSI protocol stack decomposition of the FLEX-family of protocols is shown in FIG. 4. This architectural model of the protocol engine takes advantage of the object-oriented programming methodology. At the most generic level, the OSI decomposition is protocol independent. In one embodiment, the protocol engine is based on an OSI decomposition, which is capable of generating and receiving any FLEX-family protocol.

Referring to FIG. 4, the OSI model includes forward channel session layer **406**, forward channel transport layer **404**, forward channel network layer **402**, forward channel data link layer **401**, device driver **304**, reverse channel physical layer **409**, reverse channel datalink layer **408**, reverse channel network layer **403**, reverse channel transport layer **405**, and reverse channel session layer **407**. During transmission of a message to an outbound channel of the NOC system, the message percolates from forward channel session layer **406** through to the forward channel data link layer **401** and out through device driver **304**. When messages are received from paging devices, they are received by device driver **304** and percolate through reverse channel physical layer **409** through to reverse channel session layer **407**.

Physical layer (Layer 1) **409** in the OSI model is implemented through a combination of NOC hardware and the NOC device driver **304**. In the NOC, device driver **304** converts symbol information into the proper FM symbol deviation for each of the supported outbound channels (e.g., 6 outbound channels) simultaneously. In one embodiment, this symbol information is 4-level symbol information. Physical layer **409** is also responsible for updating new symbols on each of these channels at a predetermined rate of

symbols per second. In one embodiment, this rate is 3200 symbols per second. For the inbound channels, device driver **304** performs synchronization and timing recovery algorithms at the appropriate symbol rate.

Data link layer (Layer 2) **408** looks the same for all protocols. In one embodiment, data link layer **408** is implemented for inbound channels in device driver **304** with Reed-Solomon decoding of the inbound data packets, checksum verification, and packet identification. Other decoding, verification and identification schemes may be used. In one embodiment, for multi-packet transmissions from a single paging device (e.g., subscriber device), device driver **304** extracts the data contained in the initial packet to determine the number of additional packets that follow for the message and must be received.

For the outbound channel, forward channel data link layer **401** performs the data formatting aspects of the protocol, such as block interleaving, synchronization pattern generation and detection, and formatting of all fields and parameters within those fields. In one embodiment, the outbound channel controls the message on a per frame basis. For example, each REFLEX cycle has 128 frames. With six outbound channels, there is a total of 768 frames. Each of these 768 frames is individually controlled. For example, the NOC may put an address in one frame and the message in another frame on the same channel or on other channels separated by a predetermined amount of time (e.g., four minutes). Forward channel data link layer **401** is able to implement such a scenario. In one embodiment, forward data link layer **401** performs such a scenario by using sets of pointers between the address and message.

In one embodiment, each message generated by the NOC is able to format itself at the data link layer **401**. That is, when a message propagates through the forward channel layers and reaches forward channel data link layer **401**, a messaging object specifies the protocol to which it is associated and generates addressing data formatted for that protocol. Data link layer **401** takes the codewords and places them in the correct position in the frame. The same occurs for vector and messaging fields.

Network layer (Layer 3) outbound channel layer **402** handles the routing of message traffic to the appropriate frame and outbound sub channel number. In one embodiment, each frame within every cycle of an outbound channel, contained within a 1 hour sequence, is modeled as a destination node. Thus, there are 128 destination nodes per cycle for each outbound channel, and 1920 destination nodes within a 1 hour period per channel.

When a paging device listens to a particular frame of the outbound channel, it has a temporary virtual connection to the NOC. In this layer, the NOC determines in which frames those virtual connections will occur for a particular paging device, and on which sub channel. This allows the NOC to route outbound messages to a paging device appropriately, using the current values of the NOC collapse parameters, and the paging device collapse parameters. In other words, forward channel network layer **402** determines in which frame to transmit a message. This determination may be based on the duty cycle and the class definition parameters associated with the paging device. The routing and transit information is imported into the messaging objects and when the object is communicated to the data link layer **401**, the information is embedded in the object.

In one embodiment, the NOC uses a packing algorithm which reduces the transmission time required to transmit messages within each ReFLEX™ frame. This could reduce the average power consumption of a commercial transmitter

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by reducing the percentage of time it must be keyed at its rated output power (i.e., the amount of time the transmitter is on). In addition, optimal packing of each frame allows more messages to be placed in each frame. Thus, another benefit of this algorithm is that it maximizes the capacity of a channel, such as a ReFLEX™ or FLEX™ channel.

The packing algorithm operates in conjunction with the dynamic message scheduling of protocol engine 303. As new messages arrive in a given frame, the entire frame is re-packed using this algorithm. Messages typically include address, vector and message components. After each is transmitted, the transmitter may turn off. As opposed to the prior art where a static allocation of time within all frames is assigned for each of these components, the present invention assigns the time interval for each of the message components on a per frame basis. Immediately before the frame is transmitted, all message components are packed into the front end of the frame. In this manner, the transmitter may be turned off in the back end of the frame. In one embodiment, the integrity of transmitted data is ensured under all conditions.

In addition, scheduling constraint information for both the outbound and inbound channels is extracted from the paging device class definition database, and handled by forward channel network layer 402. These constraints may include the minimum outbound channel switching time and the minimum outbound to inbound channel switching time.

For the inbound channel, reverse channel network layer 403 is responsible for associating an inbound channel transmission with an outbound channel transmission. For example, an inbound acknowledgment packet is associated with the outbound channel message in this layer. Reverse channel network layer 403 is responsible for matching the forward channel and reverse channel messages based on the timeslots for transmission exchanged between transport layers 405 and 406. In one embodiment, each message object specifies in which frame transmission is to occur and reverse channel network layer 403 correlates the outbound message and the inbound acknowledge message. Reverse channel network layer 403 passes on this information to transport layer 405, which performs certain functions, such as database checking, discussed in more detail below.

Transport layer (Layer 4) outbound and inbound channel 404 and 405 handle outbound and inbound channel ARQ transmissions. When a paging device wants to originate a message, forward transport layer 404 handles obtaining the portions of the message and reassembling it into an entire message. Reverse channel transport layer 405 maintains a list of all outstanding messages that haven't been acknowledged and maintains a timer for each message. If a paging device doesn't respond within the timing window set forth by the timeout period of the timer, then reverse channel transport 405 indicates to forward channel transport layer 404 that the message is to be sent again (with the assumption that the paging device didn't receive the message). Reverse channel transport layer 405 also determines that the message was error free.

To facilitate this repeating of messages, transport layers 404 and 405 include message retry logic. When acknowledgment is received through the reverse channel and an error occurs, retry logic at the reverse channel transport layer 405 signals the forward channel transport layer 405 which is buffering the previously sent message to indicate to forward transport layer 404 that the message is to be resent. Class definition database information is used at this level to handle device constraints such as maximum paging device transmission time and maximum outbound channel message

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fragment size. The forward channel transport layer 404 and the reverse channel transport layer 405 exchange information in a class definition database. The database maintains information specific to the class of the device. This information may include certain limitations of the device being tested. The NOC system requires such information so that it knows how to retry a message and how to schedule transmissions to and from the paging device during a test.

Forward channel session layer (Layer 5) 406 functionality block handles the generation of outbound channel message sessions. In other words, channel session forward layer 406 handles new messaging sessions. Each session has its own session number which is used for all communications with the paging device. For example, as a new message is to be sent, the forward channel session layer 406 assigns a session number. All retries for this message use the session number. To facilitate this, the session number is incorporated into a portion of the object. In another embodiment, session layer 406 also determines what message types are allowed for a particular paging device, the current session number sliding windows for both outbound and inbound channels, and the current set of addresses programmed into the subscriber device. Device registration is validated in this layer by matching the address of the inbound registration request with a valid subscriber device in the subscriber device database.

Reverse channel session layer 407 is responsible for determining whether the message transmitted from a paging device on the reverse channel is a valid paging device. A database is searched based on the address of the paging device. If the paging device is registered, then the message is communicated to a forward channel and that page message is sent out.

If a repeat option is set, then a message is sent through the forward channel of the protocol engine and is buffered at the forward channel session layer 406. When acknowledgment is received back through device driver 304 through the reverse channel layers, reverse channel session layer 407 provides (signals) a repeat indication to the port channel session layer 406, causing the previously sent message to be resent through the forward channel layers and out through device driver 304.

2. Protocol Dependent Protocol Engine

FIG. 5 illustrates one embodiment of the events, or objects, supported in one embodiment of the NOC. The leaf nodes in FIG. 5 represent actual objects within the protocol engine, which include block information (BlockInfo) object 501, forward message (fwrmsg) objects 502, and system objects 503. The objects have a common structure. The internal tree nodes represent classifications of these objects. BlockInfo block 501 encompasses block information field objects for each of the family protocols supported by the NOC. These BlockInfo objects are capable of generating the correct data structures for their respective protocols in this field. The objects are also capable of generating Automated Test Suite files and importing data from these files as well. In one embodiment, each of these objects may include configuration information and data specific for a protocol that is communicated to the paging to enable the paging device to how the system NOC is configured.

Forward messages 502 include messages that are not acknowledged 504 and those messages requiring acknowledgment 505.

In one embodiment, the relevant message types supported by this engine include alphanumeric, numeric, binary, over the air programming (OTAP), etc. Capability for embedded canned message tokens and multiple choice response

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options is also provided, in addition to the ability to generate and import Automated Test Suite files.

System **503** objects configure the operation of the NOC system, such as, for example, objects specifying the transmit power level, transmit frequency, or protocol types (e.g., FLEX, REFLEX). This information may be included in the class definition database, the subscriber device database, etc.

Objects may be read in from an ATS file or through user interface **302** and enter protocol engine **303** at forward channel session layer **406** and continue through the forward channel layers, with each layer extracting parameters to perform its functionality.

3. Device Driver

Device driver **304** is a full-duplex signal processing module. In one embodiment, device driver **304** is capable of transmitting FLEX™, ReFLEX25™, or ReFLEX50™ frames on up to 4 outbound channels simultaneously. These frames are not static bit patterns, but contain dynamic information that is generated by the NOC application in real-time. While doing this, device driver **304** is also capable of detecting incoming data packets on up to 2 inbound channels simultaneously. The baud rate of each inbound channel is also adjustable on a per-frame basis. Signal generators **103** for each outbound channel are also individually configured and controlled by device driver **304** over GPIB bus **104**. Each frame, the output amplitude of each signal generator is adjusted, to simulate the portion of the frame in which they are “keyed on” and the portion when they are “keyed off”.

Double-buffering is performed by device driver **304** on outbound frames from the NOC application program, which allows device driver **304** to transmit data while receiving data.

As is shown in FIG. 6, the REFLEX frame is shown with a synch pattern **601** and eleven blocks of data. The frame indicates when communication occurs between device driver **304** and protocol engine **303**. Device driver **304** requests a new frame of data from the NOC application (WM_VXDNEWFRAME) prior to the conclusion of the current frame, and the NOC application responds to this request prior to the start of the next frame. In one embodiment, the request occurs after 9 of the 11 blocks in the frame. In response, the NOC application responds with a new frame. An acknowledgment from the device driver **304** (WM_VXDFRAMEACK) is provided as confirmation that the data transfer was successful. This allows device driver **304** to continuously transmit frame data, without any required guard time for receiving the next frame of data. Similarly, for new messages from a paging device, device driver **304** signals the NOC application indicating that it has a registration request. The NOC, in response to this signaling, reads the data out of device driver **304**.

Device driver **304** itself has no knowledge of the structure of the protocol e.g., (ReFLEX™) itself. Device driver **304** takes the data stream that comprises one block of data and modulates the symbols onto the forward channel.

In one embodiment, the only requirement for device driver **304** is, for each frame, to transmit a buffer of 6000 symbols at 3200 baud on each outbound channel, with 2-bits per symbol. This is consistent with the 6400 bps signaling rate. For slower rates, the NOC application is responsible for formatting the data within the 6000 symbols to produce the slower modulation. The FSK deviations for the symbols are either the ReFLEX™ deviations: ± 800 , ± 2400 Hz, or the FLEX™ deviations: ± 1600 , ± 4800 Hz. This can be selected on a per-frame basis for each channel. As a result, device driver **304** enables the NOC application to switch between

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protocols, and/or between outbound channel speeds on a per-frame basis on each of the 4 outbound channels.

Inbound channel synchronization and symbol detection is performed at one of 4 possible inbound channel speeds. In one embodiment, the available speeds are 800 baud, 1600 baud, 3200 baud, and 9600 baud. Again, the selection of the inbound channel speed is possible on a per-frame basis for each inbound channel. In one embodiment, the inbound channel is sampled by a 12-bit A/D converter at 28.8 Ksamp/s. Since inbound channel modulation is 4-level FSK, there are 2 bits per symbol. The number of samples per symbol for each rate is: 72 samples at 800 baud; 36 samples at 1600 baud, 18 samples at 3200 baud, and 6 samples at 9600 baud. This rate ensures that even at the highest baud rate, there are sufficient samples per symbol to achieve reasonable receiver sensitivity.

In one embodiment, device driver **304** has an interrupt service routine, which processes a 3200 Hz clock interrupt that is generated by the clock card. At this rate, there are 9 new samples in the A/D FIFO in A/D board **202** on each hardware interrupt. These 9 samples are appended to the end of a circular buffer. The packet synchronization algorithm scans this circular buffer looking for a sync field match on each hardware interrupt.

On receiving messages, as packets are being received, device driver **304** looks at the first slot to identify the packet type. This directly effects the scheduling of messages (e.g., acknowledgments). For every forward channel, there are a number of slots on the reverse channel that are time synchronized. In those slots, acknowledgment messages, originated from paging devices, and registration messages are transmitted. However such transmissions must occur on or more designated slots. For example, an acknowledgment packet that is received by the NOC is only one slot long.

However when a message is sent it may be several slots long. Therefore, the NOC must quickly determine after the first packet slot is received whether there are additional packets to follow.

In one embodiment, a checksum is calculated on the message to enable detection. If not performed fast enough, the NOC must be capable of capturing all of the data regardless of its size. A problem associated with the such a system is that if the NOC must assume that each reverse channel transmission is a certain number of slots, then certain slots cannot be scheduled by the NOC. Therefore, in those cases where the packet type is a one slot acknowledgment, the additional slots that were presumed to have message information are discarded, and thus they cannot be scheduled for other packets.

When a sync match is detected, the data bits for the rest of the packet are detected and stored in an array. A Reed-Solomon decoder algorithm performs error-correction on the incoming bits. A checksum algorithm follows Reed-Solomon, and a determination of whether to discard the packet is made at the end of each algorithm processing step. In one embodiment, the checksum is calculated on the fly. By performing these functions, a quick determination may be made regarding the size of the message.

If the incoming packet data passes both steps, then the packet type is determined. This is the only portion of device driver **304** that has knowledge of the protocol (ReFLEX™) data structure. From the packet type, device driver **304** determines if a multi-packet transmission has occurred. If not, then the information bits from the single-packet of data are transferred to the NOC application. If so, then the additional packets of data are captured by device driver **304**, and the Reed-Solomon decoding algorithm is executed for

each packet. The resulting string of information bits for all the packets is then transferred to the NOC application.

For example, in FIG. 7, there are several slots within a frame that can contain a paging device transmission. Device driver 304 scans each of these slots, looking for an incoming packet. If a packet of type 'S' is detected, it then processes the remaining 'D', or data, packets. These packets do not contain synchronization pattern, and are handled differently. A packet of type "A" is an acknowledge packet. A packet of type "M" is a message packet.

C. Automated Test Suites

The Automated Test Suite (ATS) capability allows users access to control parameters within the system, such as, for example, output channel power level, and protocol type and channel speed. One attribute of the ATS capability is that one or more parameters within any field in an (FLEX™, ReFLEX™, etc.) outbound channel can (e.g., (FLEX™, ReFLEX™, etc.) be individually controlled. In one embodiment, these parameters are controllable on a per frame basis within a 1 hour sliding window. Another feature is that configuration data for multiple protocols can co-exist in a single ATS file. This allows the NOC to be configured to interleave multiple protocols on multiple channel streams.

In one embodiment, ATS files can be loaded into the NOC dynamically. Thus, while the NOC is transmitting outbound channel data, and receiving inbound channel data, the console operator can completely re-configure the NOC by simply loading a new ATS file.

Outbound message types, such as alphanumeric, numeric, binary, etc., are supported for all protocols. This allows users the ability to replay specific messaging scenarios in an automated, scripting fashion. Class definition and subscriber databases are also included in the ATS. These databases are

specific to each protocol and provide specific information that the NOC needs to know in order to properly communicate with each subscriber device.

In one embodiment, the mechanism for enabling ATS file capability is an ASCII text file, containing ATS file records. ATS files can be generated and loaded by the NOC. When an ATS file is generated, the current state of protocol engine 303 is saved in the newly created ATS file. Descriptive comments may be appended to each line in the file to increase its legibility.

The ATS file structure is based on a tagged file record format. A record exists for each paging device that the NOC system will test. Each record entry in the file begins with a record type parameter, followed by a record length parameter. The information in the record may include information about which addresses are programmed into the device, the number of simultaneous messages that may be received at the same time, the signature that should be on the first message, the duty cycle (collapse values) of the paging device and/or any other information that the NOC uses to effectively test the paging device. The information in the record may also include information which determines which of the forward channel frequencies the pager will listen to. This allows unknown record types to be discarded by the NOC without corrupting the records which follow. Users can modify ATS files, or create their own, although it is preferred that a NOC-generated ATS file be used as a template. Below is an example ATS file that was created by the NOC application. Note that other types of records are possible in an ATS file. In one embodiment, there are record types for each outbound message type, protocol type and protocol speed.

```

Contents of an Example ATS File
/* This is the test113.ats file
/*-----*/
/* ReFLEX50 Class Definition Database */
1      /* Record type */
139    /* Number of lines remaining in this record */
6      /* Number of PMUs registered in the R50 Database */
0x4400450 /* Primary Personal Addr */
0x0      /* Additional Personal Addr 1 */
0x0      /* Additional Personal Addr 2 */
0x0      /* Additional Personal Addr 3 */
0x660    /* Information Service Addr 0 */
0x0      /* Information Service Addr 1 */
0x0      /* Information Service Addr 2 */
0x0      /* Information Service Addr 3 */
0        /* Max Collapse for Primary Personal Address */
0        /* Max Collapse for Personal Address 1 */
0        /* Max Collapse for Personal Address 2 */
0        /* Max Collapse for Personal Address 3 */
0        /* Max Collapse for Info Svc Address 0 */
0        /* Max Collapse for Info Svc Address 1 */
0        /* Max Collapse for Info Svc Address 2 */
0        /* Max Collapse for Info Svc Address 3 */
9        /* Home control channel logical number */
3        /* Personal Collapse Mask value */
80       /* Personal Collapse Mask Start Frame */
17       /* Starting signature value for messages sent to this unit */
7        /* Information Service Collapse Mask value */
0        /* Information Service Collapse Mask Start Frame */
1        /* Semaphore count of # of simultaneous sessions to this PMU */
0x4400473 /* Primary Personal Addr */
0x0      /* Additional Personal Addr 1 */
0x0      /* Additional Personal Addr 2 */
0x0      /* Additional Personal Addr 3 */
0x30660  /* Information Service Addr 0 */
0x0      /* Information Service Addr 1 */
0x0      /* Information Service Addr 2 */

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0x0    /* Information Service Addr 3 */
0      /* Max Collapse for Primary Personal Address */
0      /* Max Collapse for Personal Address 1 */
0      /* Max Collapse for Personal Address 2 */
0      /* Max Collapse for Personal Address 3 */
0      /* Max Collapse for Info Svc Address 0 */
0      /* Max Collapse for Info Svc Address 1 */
0      /* Max Collapse for Info Svc Address 2 */
0      /* Max Collapse for Info Svc Address 3 */
11     /* Home control channel logical number */
3      /* Personal Collapse Mask value */
115    /* Personal Collapse Mask Start Frame */
16     /* Starting signature value for messages sent to this unit */
7      /* Information Service Collapse Mask value */
0      /* Information Service Collapse Mask Start Frame */
0      /* Semaphore count of # of simultaneous sessions to this PMU */
0x44005a6 /* Primary Personal Addr */
0x0     /* Additional Personal Addr 1 */
0x0     /* Additional Personal Addr 2 */
0x0     /* Additional Personal Addr 3 */
0x660   /* Information Service Addr 0 */
0x0     /* Information Service Addr 1 */
0x0     /* Information Service Addr 2 */
0x0     /* Information Service Addr 3 */
0      /* Max Collapse for Primary Personal Address */
0      /* Max Collapse for Personal Address 1 */
0      /* Max Collapse for Personal Address 2 */
0      /* Max Collapse for Personal Address 3 */
0      /* Max Collapse for Info Svc Address 0 */
0      /* Max Collapse for Info Svc Address 1 */
0      /* Max Collapse for Info Svc Address 2 */
0      /* Max Collapse for Info Svc Address 3 */
11     /* Home control channel logical number */
3      /* Personal Collapse Mask value */
38     /* Personal Collapse Mask Start Frame */
16     /* Starting signature value for messages sent to this unit */
7      /* Information Service Collapse Mask value */
0      /* Information Service Collapse Mask Start Frame */
0      /* Semaphore count of # of simultaneous sessions to this PMU */
0xcc02d7d /* Primary Personal Addr */
0x0     /* Additional Personal Addr 1 */
0x0     /* Additional Personal Addr 2 */
0x0     /* Additional Personal Addr 3 */
0x10660 /* Information Service Addr 0 */
0x0     /* Information Service Addr 1 */
0x0     /* Information Service Addr 2 */
0x0     /* Information Service Addr 3 */
0      /* Max Collapse for Primary Personal Address */
0      /* Max Collapse for Personal Address 1 */
0      /* Max Collapse for Personal Address 2 */
0      /* Max Collapse for Personal Address 3 */
0      /* Max Collapse for Info Svc Address 0 */
0      /* Max Collapse for Info Svc Address 1 */
0      /* Max Collapse for Info Svc Address 2 */
0      /* Max Collapse for Info Svc Address 3 */
11     /* Home control channel logical number */
3      /* Personal Collapse Mask value */
125    /* Personal Collapse Mask Start Frame */
16     /* Starting signature value for messages sent to this unit */
7      /* Information Service Collapse Mask value */
0      /* Information Service Collapse Mask Start Frame */
0      /* Semaphore count of # of simultaneous sessions to this PMU */
0xcc02e6a /* Primary Personal Addr */
0x0     /* Additional Personal Addr 1 */
0x0     /* Additional Personal Addr 2 */
0x0     /* Additional Personal Addr 3 */
0x20660 /* Information Service Addr 0 */
0x0     /* Information Service Addr 1 */
0x0     /* Information Service Addr 2 */
0x0     /* Information Service Addr 3 */
0      /* Max Collapse for Primary Personal Address */
0      /* Max Collapse for Personal Address 1 */
0      /* Max Collapse for Personal Address 2 */
0      /* Max Collapse for Personal Address 3 */
0      /* Max Collapse for Info Svc Address 0 */
0      /* Max Collapse for Info Svc Address 1 */
0      /* Max Collapse for Info Svc Address 2 */
0      /* Max Collapse for Info Svc Address 3 */
11     /* Home control channel logical number */

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3      /* Personal Collapse Mask value */
106    /* Personal Collapse Mask Start Frame */
16     /* Starting signature value for messages sent to this unit */
7      /* Information Service Collapse Mask value */
0      /* Information Service Collapse Mask Start Frame */
0      /* Semaphore count of # of simultaneous sessions to this PMU */
0x440044a /* Primary Personal Addr */
0x0     /* Additional Personal Addr 1 */
0x0     /* Additional Personal Addr 2 */
0x0     /* Additional Personal Addr 3 */
0x30660 /* Information Service Addr 0 */
0x0     /* Information Service Addr 1 */
0x0     /* Information Service Addr 2 */
0x0     /* Information Service Addr 3 */
0      /* Max Collapse for Primary Personal Address */
0      /* Max Collapse for Personal Address 1 */
0      /* Max Collapse for Personal Address 2 */
0      /* Max Collapse for Personal Address 3 */
0      /* Max Collapse for Info Svc Address 0 */
0      /* Max Collapse for Info Svc Address 1 */
0      /* Max Collapse for Info Svc Address 2 */
0      /* Max Collapse for Info Svc Address 3 */
11     /* Home control channel logical number */
3      /* Personal Collapse Mask value */
74     /* Personal Collapse Mask Start Frame */
16     /* Starting signature value for messages sent to this unit */
7      /* Information Service Collapse Mask value */
0      /* Information Service Collapse Mask Start Frame */
0      /* Semaphore count of # of simultaneous sessions to this PMU */
/*-----*/
/* FLEX/ReFLEX Frame Synchronization Record */
2      /* Record type */
11     /* Number of lines remaining in this record */
-1     /* Cycle Number */
0      /* Starting frame */
0      /* Repeat count for this record */
0      /* Forward channel number of the record */
6      /* ReFLEX protocol A pattern */
0      /* A pattern errors */
0      /* Abar pattern errors */
0      /* ReFLEX protocol B pattern */
0      /* B pattern errors */
0      /* Frame Information Word Error pattern */
0      /* C pattern errors */
0      /* Cbar pattern errors */
/*-----*/
/* ReFLEX50 Block Information Field Record */
3      /* Record type */
52     /* Number of lines remaining in this record */
-1     /* Cycle Number */
-2     /* Starting frame */
0      /* Repeat count for this record */
-1     /* Control channel of BI words */
1      /* Number of Forward Sub-channels */
1      /* Number of Control Sub-channels */
0      /* Personal Address Carry On */
0      /* Personal Address Collapse Mask */
0      /* Information Service Address Carry On */
0      /* Information Service Collapse Mask */
0      /* Global registration bit */
0x400f /* BI word formats selected by this record */
0      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
1      /* Aloha enabled */
1      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
0      /* Aloha enabled */
2      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
1      /* Aloha enabled */
3      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
1      /* Aloha enabled */
4      /* Format Type */
45     /* Aloha/Scheduled slot boundary */

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1      /* Reverse channel speed */
1      /* Aloha enabled */
5      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
1      /* Aloha enabled */
6      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
1      /* Aloha enabled */
7      /* Format Type */
45     /* Aloha/Scheduled slot boundary */
0      /* Reverse channel speed */
7      /* Reverse channel start */
1      /* Aloha timeout period */
1      /* Aloha enabled */
8      /* Format Type */
1      /* Aloha timeout period */
14     /* Format Type */
0      /* Zone ID */
15     /* Format Type */
1      /* Local Channel ID */
/*-----*/
/* ReFLEX50 Single-Channel Alphanumeric Record */
4      /* Record type */
25     /* Number of lines remaining in this record */
0      /* Cycle Number */
2      /* Starting frame */
5999   /* Repeat count for this record */
0      /* Message Retry Count */
0      /* Address type */
0x4400450 /* PMU Address */
0x0     /* Bit field allowing the protocol engine to change the record contents
*/
0      /* Subchannel of message */
0      /* Message offset from address */
17     /* Length of msg */
A Default message
0      /* Message fragment number */
0      /* Message continuation */
0      /* Message encryption */
0      /* Message compression */
0      /* Type of ack response */
0      /* Reverse channel num (for ACK) */
0      /* Number of frames before ack is transmitted */
10     /* Slot number of ack packet */
0      /* Position pointer in ack flag field */
0      /* Mail drop flag */
0      /* Multiple choice response flag */
0      /* Canned message flag */
/*-----*/

```

D. Serial Port Interface

The serial port interface provides a mechanism for transmitting messages to paging devices using an external computer system. Data is transported using variable-length record types. Data transfers from the serial port are asynchronous in nature, which allows for variable message scheduling delays in the NOC system. Each record type that is transmitted is acknowledged to ensure that the transfer was successful. In one embodiment, the message size for all outbound and inbound messages is limited to 32 Kbytes.

E. User Interface

FIGS. 8A to 8G illustrate an example user interface. There are two goals of the user interface for the test station. The first is to provide a clear, organized, and consistent view of the large amount of complex data. The second goal is to make NOC testing simple and easy to learn.

Referring to FIGS. 8A and 8A-1, data is organized visually into four groups:

Σ Summary Window **801**. Summary window **801** displays what protocol, speed, and test mode the user is testing. It also displays which channel is being used. This window gives the user information about which cycle and which

frame the NOC is sending. This information may be used to read when the text is displayed in a large, boldface font. In one embodiment, when a channel is being used, the word “ENABLED” is displayed in green text and when a channel it is not, the word “DISABLED” is displayed in read text. The cycle number, frame number, total frames sent, and test mode are displayed. In one embodiment, these are displayed in reverse video because many NOC users may stand close to the display (e.g., PC monitor). NOC summary window **801** also displays the field lengths for forward channels **0–5**, indicating the address, vector and message field lengths for each block.

Σ Forward Channel Window **802**. Forward channel window **802** displays data to indicate what is occurring on the forward channel. In one embodiment, window **802** is a smaller window than summary window **801** and has a horizontal scroll bar. This allows the user to scroll backwards a predetermined number of frames (e.g., three frames, or any number of frames) to look at data. In one embodiment, window **802** has two modes: a default one with a minimum set of data fields and an advanced mode with every data field.

Σ Reverse Channel Window **803**. Reverse channel window **803** displays data in the same manner as forward channel window **802**.

Σ Block Information Window **804**. Block Information Window **804** displays data in the same manner as forward channel data window **802**.

FIG. **8B** illustrates a window for selecting a test on one of the forward channels. Referring to FIG. **8B**, a list box with pre-selected frame speeds is used to select the frame speed. The pre-selected frame speed choices include an indication of the protocol for which the frame speed is possible. The forward channel is also selectable through up-down arrows which increase and decrease the channel number shown in the window. The forward channel test selection block also includes windows for specifying error patterns. In one embodiment, these windows allow for the user to enter a hexadecimal error pattern that is XORed with the requisite protocol parameter, thereby forcing errors on the transmitted data.

FIG. **8C** illustrates an example window that may be used to specify what information is to appear in the block information window **804**. As shown, multiple pre-selected choices appear in the window to specify different information that may be selected to appear at the same time in block information window **804**. The user is also able to select the value for the block information word along with the channel number. The value for block information words allows a user to assign a value to the protocol parameter selected on the left view of the window.

FIGS. **8D** through **8G** illustrate a series of windows that are used to send a message. Referring to FIG. **8D**, an address dialog box includes a list box for selecting a protocol, the address type, and a box for entering the address. There are personal and information service address types.

FIG. **8E** illustrates a dialog box for specifying a message vector. The message vector dialog box includes a list box with pre-selected choices for selecting the type of message and another list box for selecting the type of acknowledgment, including a no acknowledgment selection. The user may select a multiple device responses or canned messages, which generate unprintable ASCII characters, as part of the message body.

FIG. **8F** illustrates a dialog box for specifying the message that is to be sent. The dialog box lists pre-selected choices for a number of message fragments and a scroll box that allows the user to select a number of message fragments to be sent.

FIG. **8G** illustrates a dialog box for selecting the scheduling of the message to be sent. The scheduling dialog box indicates whether the message will be retried after the first transmission, if there is an error in sending the message or in the case where no acknowledgment is received for a message. The scheduling dialog box also includes a scroll box for selecting the message channel and indicates a message tree offset. Furthermore, the scheduling dialog box allows for selection of manual reverse channel scheduling and the entry of the specific reverse channel slot number.

The user interface is simple and easy to learn because of the use of common conventions such as the dialog boxes to open, create, and save ATS files. Dialog boxes that contain as many scrollboxes and listboxes with pre-selected choices. This eliminates some redundant typing. When the user makes a selection in a dialog box, this selection is saved by the dialog box so that the last selection is displayed when the user brings up the dialog again.

In one embodiment, a NOC may be coupled to the backbone, such as an Internet backbone, by which a Java or

other application may be used to capture data and stream it into a paging device. Further, the NOC may be used individually to provide a campus paging environment or with of NOCs coupled together to provide a local paging environment.

Whereas many alterations and modifications of the present invention will no doubt become apparent to a person of ordinary skill in the art after having read the foregoing description, it is to be understood that any particular embodiment shown and described by way of illustration is in no way intended to be considered limiting. Therefore, references to details of various embodiments are not intended to limit the scope of the claims which in themselves recite only those features regarded as essential to the invention.

What is claimed is:

1. A system providing a multi-channel wireless communications testing environment, said system comprising:

a transmitter;
a receiver; and

a protocol engine interfaced to the transmitter and receiver to send and receive information to and from a two-way communication device, respectively, to test the two-way communication device for compliance with a plurality of communication protocols, wherein the protocol engine transmits and receives information over multiple channels simultaneously.

2. The system defined in claim 1 wherein the protocol engine performs scheduling for a selected protocol.

3. The system defined in claim 1 wherein the communication device comprises a paging device.

4. The system defined in claim 1 wherein the protocol engine is operable to send and receive information to perform engineering testing, manufacturing testing and application testing.

5. The system defined in claim 1 wherein the plurality of protocols comprises at least a one-way communication protocol and at least a two-way communication protocol.

6. The system defined in claim 1 wherein the protocol engine uses scripted tests when testing the communications device.

7. The system defined in claim 6 further comprising an automated test script storage area to store and permit access to a scripted set of tests.

8. The system defined in claim 1 further comprising a device driver to transfer information between the protocol engine and both the receiver and the transmitter.

9. The system defined in claim 1 wherein the protocol engine comprises a series of instructions executed on at least one processor.

10. A system providing a multi-channel wireless communications testing environment, said system comprising:

transmitter and receiver hardware to transmit and receive information to and from communications devices using a plurality of channels; and

a protocol engine interfaced to the transmitter and receiver hardware via a device driver to send and receive information to and from the communication devices, respectively, to test the communication devices for compliance with a plurality of communication protocols over the plurality of channels simultaneously.

11. The system defined in claim 10 further comprising a user interface to enter information to control the protocol engine.

12. The system defined in claim 11 wherein the user interface permits a user to select one of the plurality of communication protocols for testing.

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13. The system defined in claim 10 further comprising an automated test storage area storing at least one scripted test.

14. The system defined in claim 13 wherein said at least one scripted test comprises an ASCII coded text file.

15. The system defined in claim 13 wherein said at least one scripted test comprises information for configuring the system and sending messages through the system.

16. The system defined in claim 10 wherein the protocol engine comprises a retry message layer to facilitate resending of a previously sent message when an acknowledgment confirming successful transfer of the previously sent message has not been received.

17. The system defined in claim 10 wherein the protocol engine performs scheduling and transmitting for each of the plurality of protocols.

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18. The system defined in claim 10 wherein the protocol engine uses an object-oriented structure.

19. The system defined in claim 10 wherein the protocol engine accesses a database to obtain device specific information to facilitate testing of a communication device.

20. The system defined in claim 19 wherein the device specific information comprises information to facilitate retrying to send a message to the communication device during a test.

21. The system defined in claim 19 wherein the device specific information comprises information to facilitate scheduling transmissions to and from the communication device during a test.

* * * * *

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP
Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP
Defendants.

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Civil Action No. 2-05CV-443
Judge T. John Ward

Jury Demand

**DEFENDANT COMCAST CORPORATION'S NOTICE OF SERVICE OF
AMENDED INITIAL DISCLOSURES**

Pursuant to Federal Rule of Civil Procedure 5, Defendant Comcast Corporation served its
AMENDED INITIAL DISCLOSURES PURSUANT TO THE DISCOVERY ORDER AND
FEDERAL RULE OF CIVIL PROCEDURE 26 to all counsel of record on January 18, 2007.

Respectfully submitted,

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**ATTORNEYS FOR DEFENDANTS
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COMCAST CABLE
COMMUNICATIONS, LLC, and
COMCAST OF PLANO, LP**

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this 19th day of January, 2007.

/s/ Jennifer Haltom Doan
Jennifer Haltom Doan

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP
Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP
Defendants.

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Civil Action No. 2-05CV-443
Judge T. John Ward

Jury Demand

**JOINT MOTION TO SUBMIT SECOND AMENDED JOINT CLAIM
CONSTRUCTION AND PREHEARING STATEMENT**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”) and Defendants Comcast Corporation; Comcast Cable Communications; LLC; and Comcast of Plano, LP, (“Comcast”) respectfully move to submit a Second Amended Joint Claim Construction and Prehearing Statement, and would show the Court as follows:

1. Under Patent Rule 4.3, the parties are to submit a Joint Claim Construction and Prehearing Statement containing (a) agreed claim constructions; (b) each party’s proposed constructions on disputed terms, with citations to the specification, prosecution history and extrinsic evidence; (c) anticipated length of time necessary for hearing; (d) whether any party proposes a witness at the hearing; and (e) a list of any other issues to be taken up at the claim construction hearing.

2. The parties jointly request leave to file the Second Amended Joint Claim Construction and Prehearing Statement attached hereto as Exhibit A.

3. In submitting this Second Amended Joint Claim Construction and Prehearing

Statement, neither party waives its right to object to and/or otherwise challenge the constructions proposed and evidence cited herein.

FOR ALL THESE REASONS, Plaintiff Rembrandt and Defendant Comcast respectfully move to submit the Second Amended Joint Claim Construction and Prehearing Statement, attached hereto as Exhibit A.

Respectfully submitted,

By: /s/ Thomas A. Brown

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this 22nd day of January, 2007.

/s/ Thomas A. Brown
Thomas A. Brown

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**SECOND AMENDED JOINT CLAIM CONSTRUCTION AND PREHEARING
STATEMENT**

Pursuant to Eastern District of Texas Patent Rule 4-3, Plaintiff Rembrandt Technologies LP (“Rembrandt”), and Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP (collectively “Comcast”) hereby provide their Joint Claim Construction and Prehearing Statement.

I. AGREED CLAIM CONSTRUCTIONS

The parties have agreed that certain claim terms, phrases, or clauses that were the subject of the parties’ Patent Rule 4-2 Exchange do not presently require construction by the Court, and have removed those claim terms, phrases, or clauses from the charts attached to this pleading.

The parties have also agreed as to the function of certain of the means-plus-function terms in the patents-in-suit. Because the corresponding structure remains in dispute, these terms are listed in exhibit A, attached.

II. DISPUTED CLAIM CONSTRUCTIONS

The parties have set forth their proposed constructions, including the intrinsic and extrinsic evidence relied upon in support thereof, in Exhibit A, attached. The parties reserve the right to rely on any evidence cited by either party. The parties further reserve

the right to offer rebuttal expert testimony on any claim term for which the other party offers expert testimony.

III. ANTICIPATED LENGTH OF CLAIM CONSTRUCTION HEARING

The parties believe that it would be appropriate for the Court to allocate four hours to the claim construction hearing, with two hours allocated to each side, including reserved rebuttal time.

IV. CLAIM CONSTRUCTION WITNESSES

The parties do not anticipate calling live witnesses at the claim construction hearing except as the Court may request. If so requested, Rembrandt would present the testimony of Dr. V. Thomas Rhyne. Comcast would present the testimony of Dr. Curtis A. Siller, Jr., and Dr. Harry Bims.

V. CLAIM CONSTRUCTION PREHEARING CONFERENCE

The parties do not believe a claim construction prehearing conference is needed, except at the request of the Court.

Dated: January 22, 2007

Respectfully submitted,

By: /s/ Thomas A. Brown

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served by electronic filing to all counsel of record on this 22nd day of January, 2007. Any counsel not served through electronic filing will be served by first-class mail this 22nd day of January, 2007.

/s/ Thomas A. Brown

Thomas A. Brown

EXHIBIT A: DISPUTED CLAIM TERMS**United States Patent No. 5,243,627**

‘627 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>trellis encoded channel symbol (claims 9, 19)</p>	<p><u>Proposed construction</u></p> <p>A set of one or more trellis encoded signal points that corresponds to a group of bits that is treated as a unit by an encoding system</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figures 1, 2, 3, 4, 5, 6, 7.</p> <p>Column 1, line 34 – column 2, line 50.</p> <p>Column 2, line 61 – column 3, line 3.</p> <p>Column 3, line 19 – column 4, line 24.</p> <p>Column 5, lines 1 – 41.</p> <p>Column 6, line 46 – column 9, line 51.</p> <p>Claims 1, 3, 11, 13, 21 and 23.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 5,559,561 (REM0086656-REM0086673)</p>	<p><u>Proposed construction</u></p> <p>The output of a mapper that is generated using the output(s) of a single state transition of a trellis encoder.</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract</p> <p>Col 1 Lns. 38-44; 48-58; 59</p> <p>Col 2 Ln 2; 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3;</p> <p>Col 4 Lns 4-11; 12-24; 56-59; 61-62</p> <p>Col 5 Lns 4-9; 13-30</p> <p>Col 6 Lns 3-23; 36-39; Ln 55 – Col 7 Ln 6</p> <p>Col 7 Lns 9-18; 25-32; 33-54; Ln 55 – Col 8 Ln 9</p> <p>Col 8 Lns 14-35; 38-56; 58 – Col 9 Ln 13</p> <p>Col 9 Lns 14-28; 36-44</p> <p>Figures 1-7</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 1072 (6th ed. 1996) (“Symbol”) (5th)</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>U.S. Patent No. 5,706,312 (REM0086674-REM0086687)</p> <p>U.S. Patent No. 5,512,957 (REM0086636-REM0086655)</p> <p>802.14 PHY Proposal, Thomas Kolze (Cable TV Protocol Working Group), October 1995 (COMREM00669632-COMREM00669645).</p> <p>Dolinar and Belongie. Enhanced Decoding for the Galileo S-band Mission, August 1993. (REM0086691-REM0086706)</p> <p>Blue Book, Issue-3, Telemetry Channel Coding.</p> <p>Consultative Committee for Space Data Systems, May 1992. (REM0086940-0086981)</p> <p>Technical Report Number 59, Signal Carrier Rate Adaptive Digital Subscriber Line, September 1999. (REM0086707-REM0086896)</p> <p>Data Over Cable Systems Radio Frequency Interface Specification 1.1, Engineering Committee, 2002 (COMREM00845847-COMREM0084624)</p> <p>Data Over Cable Service Interface Specifications 2.0, Radio Frequency Interface Specification, 2003 (REM0065021-REM0065532)</p>	<p>definition).</p> <p>JERRY MARTIN ROSENBERG, DICTIONARY OF COMPUTERS, DATA PROCESSING, AND TELECOMMUNICATIONS 518 (1984). ("Symbol") (3rd definition).</p> <p>JERRY MARTIN ROSENBERG, DICTIONARY OF COMPUTERS, DATA PROCESSING, AND TELECOMMUNICATIONS 479 (1984) ("Signal element") (3rd definition).</p> <p>EZIO BIGLIERI, ET AL., INTRODUCTION TO TRELLIS-CODED MODULATION WITH APPLICATIONS 72-73 (1991).</p> <p>RICHARD D. GITLIN, ET AL., DATA COMMUNICATION PRINCIPLES 355-356 (1992).</p> <p>U.S. Patent No. 4,945,549 at Fig. 1; Col. 4 Lns. 4-31 (filed Sep. 15, 1988).</p> <p>U.S. Patent No. 4,922,507, at Col. 4, Lns. 37-56 (filed Dec. 1, 1987).</p> <p>U.S. Patent No. 5,023,889, at Col. 3, Ln. 38 - Col. 4, Ln. 28 (filed May 31, 1988).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>Chung, et al., U.S. Patent No. 5,214,656.</p> <p>Wang, et al., U.S. Patent No. 5,052,000.</p> <p>12/19/06 Deposition of V. Thomas Rhynne, at 25:24-26:9.</p> <p>12/22/06 Deposition of Harry Bims, at 251:16-25.</p>
<p>signal point (claims 9, 19)</p>	<p><u>Proposed construction</u></p> <p>A value that is transmitted by a modulator in one signaling interval</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figures 1, 2, 3, 4, 5, 6 and 7</p> <p>Column 2, lines 5 – 50.</p> <p>Column 3, line 4 – column 4, line 51.</p> <p>Column 5, line 1 – column 6, line 26.</p> <p>Column 6, line 48 – column 9, line 51.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 5,559,561 (REM0086656-REM0086673)</p> <p>U.S. Patent No. 5,706,312 (REM0086674-REM0086687)</p>	<p><u>Proposed construction</u></p> <p>A single mapped point in a signal constellation.</p> <p><u>Extrinsic Evidence</u></p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 186-187 (1988).</p> <p>GILBERT HELD, DICTIONARY OF COMMUNICATIONS TECHNOLOGY 400 (2d ed. 1995) ("Signal constellation").</p> <p>RICHARD D. GITLIN, ET AL., DATA COMMUNICATION PRINCIPLES 355-356 (1992).</p> <p>Wang, et al., U.S. Patent No. 5,052,000.</p> <p>Wei, U.S. Patent No. 5,559,561.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>U.S. Patent No. 5,512,957 (REM0086636-REM0086655)</p>	<p>Col 1 Lns 29-33; 54-58 Col 2 Lns 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3 Col 3 Lns 4-10; 30-44; 56-60; 65 – Col 4 Ln 3 Col 4 Lns 4-11; 35-46 Col 5 Lns 24-41; 44 – Col 6 Ln 26 Col 6 Ln 48 – Col 8 Ln 9 Col 8 Lns 14-35; 38-56; 58 – Col 9 Ln 13 Col 9 Lns 14-28; 29-44; 45-49</p> <p>Figures 1-7</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p>
<p>Distributed Viterbi decoder (claims 9, 19)</p>	<p><u>Proposed construction</u></p> <p>A Viterbi decoder having multiple Viterbi decoding processes operating on separate portions of a stream of data to be decoded</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figure 3, 4, 5, 6 and 7.</p> <p>Column 1, line 34 – column 2, line 20.</p> <p>Column 4, line 52 – column 5, line 41.</p>	<p><u>Proposed construction</u></p> <p>Two or more Viterbi decoders operating in round-robin fashion on separate portions of a stream of encoded data.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract</p> <p>Col 1 Lns 29-33; 34-46; 59-65 Col 2 Lns 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3 Col 6 Lns 12-26; 62-66 Col 8 Ln 58 – Col 9 Ln 13</p> <p>Figures 1, 3-4</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Column 6, lines 12 – 26.</p> <p>Column 6, line 48 – column 8, line 13.</p> <p>Column 8, line 57 – column 9, line 28.</p> <p>Column 9, line 52 – column 10, line 3.</p> <p>Prosecution History, Office Action Response dated December 21, 1992 at TKHR 0000886 – TKHR 0000890.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 4,677,625 (COMREM00669498-COMREM00669505)</p>	<p>pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>MICROSOFT COMPUTER DICTIONARY 167 (5th ed. 2002) ("Distribute").</p> <p>MERIAM-WEBSTER COLLEGIATE DICTIONARY 337 (10th ed. 2001) ("Distribute").</p> <p>WIKIPEDIA, available at http://en.wikipedia.org. ("Viterbi decoder").</p> <p>MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 2265 (6th ed. 2003) ("Viterbi algorithm").</p> <p>Explanation by Dr. Harry Bims of Viterbi decoding.</p>
<p>means for deinterleaving the inter-leaved signal points to recover said plurality of streams of trellis encoded channel symbols (claim 9)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: to reverse the process of interleaving performed in the transmitter to recover multiple streams of trellis encoded channel symbols from the interleaved signal points</p> <p>Structure: signal point deinterleaver 441 or switching circuit 431, or a software based deinterleaver or switching circuit, and equivalents</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p>Function:</p> <p>Deinterleaving the interleaved signal points to recover the plurality of streams of trellis encoded channel symbols</p> <p>Structure:</p> <p>Figure 4 (Streams 456/442, Blocks 441/431, Elements 441/4412); Figure 7 (Streams 456/442, Block 741, Elements</p> <p>7411/7412/7413/7414); Col 2: Lns 39-42, 48-50; Col 5: Ln</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Figures 4, 5, 6 and 7.</p> <p>Column 5, line 67 – column 6, line 26.</p> <p>Column 8, line 57 – column 9, line 13.</p> <p>Column 9, line 45 – column 10, line 3.</p> <p>Refer also to intrinsic evidence cited in support of the claim terms “trellis encoded channel symbol” and “signal point”</p>	<p>67 - Col 6 Ln 20; Col 8: Ln 62 - Col 9 Ln 51.</p> <p>Intrinsic Evidence: Refer to intrinsic evidence cited in support of the claim terms: “trellis encoded channel symbols”; signal points”; and “plurality of streams of trellis encoded channel symbols”. Also columns and lines 1:59-2:13, 5:24-41, 5:67-6:2, 9:45-51, and 11:31.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

United States Patent No. 5,852,631

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>physical layer (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>The lowest layer of the Open Systems Interconnect (OSI) seven layer model, concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for</p> <p>Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction, with the clarification that negotiation of the physical layer modulation is not the same as the establishment of the connection.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract Col 1 Ln 62 – Col 2 Ln 11 Col 2 Lns 12-18; 33-39; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 4-13; 24-61 Col 5 Lns 5-24 Col 6 Lns 24-36; 37-56; 66 – Col 7 Ln 29 Col 10 Lns 57-59, 63 – Col 11 Ln 10 Col 11 Lns 23-28; 33-42 Col 12 Lns 43-54 Col 13 Lns 23-41</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>(REM0086902-REM0086909).</p> <p>Society of Cable Telecommunications Engineers, Cable-Tec Expo '98 (Denver Colorado, June 10-13, 1998) (COMREM 00982076-00982709).</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086899-REM0086900) (definition of "physical layer").</p> <p>DSET, LNP Automation Solution: Local Service Management System (LSMS) for Comcast (December 8, 2004) (COMREM00960142-COMREM00960170).</p>	<p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 203 (6th ed. 1996) ("Connection") (5th definition).</p>
<p>negotiated physical layer modulation (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>A physical layer modulation selected by a process permitting two modems supporting different physical layer modulations to agree on a common supported physical layer modulation.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of</p>	<p><u>Proposed construction</u></p> <p>A physical layer modulation agreed upon between two modems after exchanging information at run time.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract Col 1 Lns 17-21; 37-48; 49-51; 55-61; 62 – Col 2 Ln 11 Col 2 Lns 12-18; 33-39; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 24-61 Col 6 Lns 24-39; 37-56; 58-59; 66 – Col 7 Ln 2 Col 7 Lns 15-30 Col 8 Lns 23-41 Col 11 Lns 39-46</p> <p>Figures 1-8</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>November 21, 1997 (TKHR00000156-TKHR00000162); Response of January 22, 1998 (TKHR00000144-TKHR00000154); Office Action of February 19, 1998 (TKHR00000136-TKHR00000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>U.S. Patent No. 4,905,282 (REM0086910-REM0086924)</p> <p>U.S. Patent No. 5,491,720 (REM0086925-REM0086935)</p> <p>IEEE Std 802.3u-1995, § 28 (COMREM 671706-672120).</p> <p>Draft CEA-679-C, National Renewable Security Standard (NRSS) (COMREM50007474).</p> <p>Rembrandt incorporates by reference the intrinsic and extrinsic evidence cited for the term "physical layer modulation."</p>	<p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>Rejection</i>, September 4, 1997, at pgs. 4-6; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence</u>:</p> <p>"Negotiation": When a connection is established between the virtual terminals in different systems, an initial dialogue is needed to establish the parameters that each will use during the transaction. This is known as the negotiation phase." GILBERT HELD, DICTIONARY OF COMMUNICATIONS TECHNOLOGY 285 (2d ed. 1995).</p> <p>"Negotiate": To confer with another or others in order to come to terms or reach an agreement To arrange or settle by discussion and mutual agreement. THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1176 (4th ed. 2000).</p> <p>"Negotiate": to arrange for or bring about through conference, discussion, and compromise." MERIAM-WEBSTER COLLEGIATE DICTIONARY 775 (10th ed. 2001).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p>12/19/06 Deposition of V. Thomas Rhynne, at 37:8-18.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>physical layer modulation (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>A protocol that is concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for</p> <p>Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction, with the clarification that negotiation of the physical layer modulation is not the same as the establishment of the connection.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract</p> <p>Col 1 Lns 17-20; 37-48; 49-51; 55-61; 62 – Col 2 Ln 11</p> <p>Col 2 Lns 12-18; 29-38; 39-59; 62 – Col 3 Ln 21</p> <p>Col 3 Lns 24-61</p> <p>Col 4 Lns 41-44, 48-51, 56-58</p> <p>Col 5 Lns 8-10, 24-25, 33-34; 49 – Col 6 Ln 11</p> <p>Col 6 Lns 12-23; 24-56; 57-65</p> <p>Col 7 Lns 15-30; 35-38;</p> <p>Col 8 Lns 23-41; 48-51</p> <p>Col 9 Lns 4-8; 15-22; 32-34, 38-46; 54-57, Col 10 Lns 1-4</p> <p>Col 10 Lns 26-31; 57 – Col 11 Ln 10</p> <p>Col 11 Lns 30-46</p> <p>Col 12 Lns 45-50; 59-65</p> <p>Col 13 Lns 23-41</p> <p>Col 14 Lns 1-5</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Society of Cable Telecommunications Engineers, Cable-Tec Expo '98 (Denver Colorado, June 10-13, 1998) (COMREM 00982076-00982709).</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086899-REM0086900) (definition of "physical layer").</p> <p>DSET, LNP Automation Solution: Local Service Management System (LSMS) for Comcast (December 8, 2004) (COMREM00960142-COMREM00960170).</p>	<p>on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 662 (6th ed. 1996) ("Modulation") (1st and 5th definitions).</p> <p>MICROSOFT COMPUTER DICTIONARY 346 (5th ed. 2002) ("Modulation") (2nd definition).</p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 679 (1988).</p> <p>WILEY ENCYCLOPEDIA OF ELECTRICAL AND ELECTRONICS ENGINEERING 668 (John G. Webster, ed.) (1999).</p> <p>ANDREW S. TANENBAUM, COMPUTER NETWORKS 29-30 (3d ed. 1996).</p> <p>THE COMMUNICATIONS HANDBOOK 573 (Jerry D. Gibson, ed.) (1996).</p>
<p>link layer (claims 1, 3, 4, 6, 8, 9, 10)</p>	<p><u>Proposed construction</u></p> <p>The second lowest layer of the Open Systems Interconnect (OSI) seven layer model, providing the functional and procedural means to transfer data between modems, and to detect and correct errors that can occur in the physical layer.</p>	<p><u>Proposed construction</u></p> <p>The link layer is the second lowest layer of the OSI seven layer model and is provided to perform error checking functions as well as retransmitting frames that are not received correctly.</p> <p><u>Intrinsic Evidence:</u></p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 2-8; 1:23-61; 2:40-59; 2:62-3:15; 3:34-58; 4:5-18; 11:30-13:41; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086897-REM0086898) (definition of "link layer").</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086897-REM0086898).</p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p> <p>In-Taek Lim & Jeong-Seok Heo, "Performance Analysis</p>	<p>Abstract</p> <p>Col 1 Lns 17-21; 27-48; 51-54; 55-61 Col 2 Lns 6; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 24-61 Col 6 Lns 57-65 Col 11 Lns 23-28; 30-51; 52-58; 59 – Col 12 Ln 8 Col 12 Lns 9-36, 36 – Col 13 Ln 4</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 679 (1988).</p> <p>WILEY ENCYCLOPEDIA OF ELECTRICAL AND ELECTRONICS ENGINEERING 668, 670 (John G. Webster, ed.) (1999).</p> <p>THE COMMUNICATIONS HANDBOOK 573 (Jerry D. Gibson, ed.) (1996).</p> <p>ANDREW S. TANENBAUM, COMPUTER NETWORKS 30 (3d ed. 1996).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>of CDMA_ALOHA/FEC Scheme in the Centralized Packet Radio Networks," International Conference on Information, Communications and Signal Processing, September 9-12, 1997 (REM0087187-REM0087191).</p>	<p>ELECTRONIC TERMS 203 (6th ed. 1996) ("Connection") (5th definition).</p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>means for establishing a physical layer connection between said calling and said answer modems, wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations (claim 6)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Establishing a physical layer connection based on a negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to execute any one of the four algorithms depicted in the following excerpts from the '631 patent, or equivalent structures:</p> <p>FIG. 4, boxes labeled "Finish dialing and send Clqck-cell signal (1500 & 1900)," "1680 Hertz," "800 Hertz," "Detect other answer signal"; "Perform modem startup and training"; "Synchronize to alternative modulation standard"; or FIG. 5, boxes labeled "Clqck signal received within two seconds," "Standard automode, send ans (2100 Hz)," "Send ANSqck (V.34 S signal)," "Perform Modem</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p>Function:</p> <p>Establishing a physical layer connection based on a negotiated physical layer modulation.</p> <p>Structure:</p> <p>Figs. 4-9; Col. 8, Ln. 23-Col. 9, Ln. 8; Col. 9, Lns. 15-46; Col. 9, Ln. 47-Col. 10, Ln. 56.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "physical layer connection"; "negotiated physical layer modulation"; "physical layer modulation"; "based on".</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Startup and Training"; or FIG. 6, boxes labeled "Send Clqck-Central," "ANS detected?," "ETC1 (V.32bis training); "ANSam detected?"; "V.34 startup," "ANSqck detected (1680)," "Startup under alternative standard," "Begin ETC2 startup and training"; or FIG. 7, boxes labeled "CI of V.34 detected," "V.34 send ANSam," "Clc1c1 detected," "ETC1 mode, send 'ans,'" "Clqck-cell detected (1500 & 1900)," "Send ANSqqk-PSTN," "Send ANSqqk (V.34 S signal) (1680 Hz)," "ETC2 Startup (Send S signal)."</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 1-9; 1:23-2:39; 2:62-3:15; 3:31-62; 4:5-18; 5:42-11:27; 13:42-14:19; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhynne regarding the structures corresponding to the recited function.</p> <p>Rembrandt incorporates by reference its intrinsic and</p>	<p>on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>extrinsic support for the claim terms: "physical layer"; "negotiated physical layer modulation"; "physical layer modulation"; and "establishing said link layer connection based upon said negotiated physical layer modulation."</p>	
<p>means for establishing said link layer connection based upon said negotiated physical layer modulation (claim 6)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Establishing the link layer connection based upon the negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to establish a link layer connection substantially instantaneously upon the completion of the physical layer negotiation, or equivalent structures.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 1-9; 1:23-61; 2:40-59; 2:62-3:15; 3:31-62; 4:5-18; 11:30-14:19; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Establishing link layer connection based upon negotiated physical layer modulation.</p> <p><u>Structure:</u></p> <p>Figs. 8-9; Col. 11, Lns. 45-46; Col. 12, Ln. 55-Col. 13, Ln. 17; Col. 13, Lns. 34-41; Col. 13, Ln. 55-Col. 14, Ln. 9.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "negotiated physical layer modulation"; "physical layer modulation"; "based upon"; "link layer connection".</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Extrinsic evidence:</u></p> <p>Testimony of Dr. V. Thomas Rhyme regarding the structures corresponding to the recited function.</p>	<p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>
<p>means for presetting link layer parameters of said link layer connection to pre-defined settings based on said negotiated physical layer modulation (claim 9)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Presetting link layer parameters based on the negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to preset XID phase parameters to default values that are based upon the negotiated physical layer connection, and equivalent structures.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 1-9; 1:23-61; 2:40-59; 2:62-3:15; 3:31-62; 4:5-18; 11:30-14:19; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR00000181-TKHR00000189); Response of October 23, 1997 (TKHR00000165-TKHR00000179); Office Action of November 21, 1997 (TKHR00000156-TKHR00000162); Response of January 22, 1998 (TKHR00000144-</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Presetting link layer parameters based on negotiated physical layer modulation.</p> <p><u>Structure:</u></p> <p>Figs. 8-9; Col. 12, Ln. 55-Col. 13, Ln. 17; Col. 13, Lns. 34-41; Col. 13, Ln. 55-Col. 14, Ln. 9.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "link layer parameters"; "negotiated physical layer modulation"; "physical layer modulation"; "based on"; "link layer connection";</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23,</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhyme regarding the structures corresponding to the recited function.</p>	<p>1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

United States Patent No. 4,937,819

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>application program[s] (claims 1, 14)</p>	<p><u>Proposed construction</u> a computer program or process</p> <p><u>Intrinsic Evidence</u> Abstract; FIG. 5; 1:7-12; 1:14-25; 1:45-52; 1:56-62; 2:5-10; 2:26-34; 3:12-19; 4:53-61; 5:59-68; 6:49-51</p> <p><u>Extrinsic Evidence</u> The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "application program") Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "application" and "program") 11/7/06 Deposition of Wayne Moore (rough transcript) at 84:13-24 11/8/06 Deposition of Joseph King (rough transcript) at 39:10-43:12; 53:17-54:23; 55:18-57:6; 58:23-59:3; 125:8-126:17</p>	<p><u>Proposed construction</u> A program designed to assist in the performance of a specific end-user task (<i>e.g.</i>, word processing, accounting, or inventory management) in contrast to a program designed to perform management of or maintenance work on the system or system components.</p> <p><u>Intrinsic Evidence:</u> '819 Patent Abstract; Figs. 2, 4-5; columns and lines 1:7-12; 1:14-41; 1:45-2:34; 2:56-60; 3:12-19; 3:21-24; 3:39-41; 3:50-56; 4:39-52; 4:55-61; 5:10-13; 5:24-26; 5:64-68; 6:43-48; 6:49-51; 6:66-67. '819 Prosecution History 9/26/88 Patent Application at 15-18 (REM 0055943-55946). 5/20/89 Office Action at 2 (REM 0055992). 8/30/89 Amendment at 2-4, 6 (REM 0056095-56097, 56099).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>10/13/89 Office Action at 4 (REM 0056108).</p> <p>U.S. Patent No. 4,606,023 (Dragoo) (REM 0055999-56007).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence:</u></p> <p>MICROSOFT COMPUTER DICTIONARY 33 (5th ed. 2002) ("application program").</p> <p>MICROSOFT COMPUTER DICTIONARY 31 (5th ed. 2002) ("application").</p> <p>MICROSOFT COMPUTER DICTIONARY 544 (5th ed. 2002) ("utility").</p> <p>MICROSOFT COMPUTER DICTIONARY 544 (5th ed. 2002) ("utility program").</p> <p>NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 49 (5th ed. 1993).</p> <p>NEWTON'S TELECOM DICTIONARY 40 (1991) ("application").</p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs (claim 14)</p>	<p><u>Proposed construction</u></p> <p>Ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>FIG. 5; 4:53-61; 5:10-23; 6:37-39; 6:49-51; claim 15</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p>	<p>WEPEDIA, available at http://www.webopedia.com/TERM/a/application.html (last visited Oct. 13, 2006) (“application”).</p> <p>11/8/06 Deposition of Joseph King, at 39:10 – 43:12; 53:17 – 54:23; 125:8 – 126:15 (based on rough transcript); at 46:12-17; 133:23-134:8 (based on final transcript).</p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs (claim 14)</p>	<p><u>Proposed construction</u></p> <p>Dividing the network clock period into time units (subframes), each of which is used for transmission by a specified remote; and dividing each subframe into smaller time units (time slots), each of which is assigned at initialization to one application via non-packetized messages from the master.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p>	<p><u>Proposed construction</u></p> <p>Dividing the network clock period into time units (subframes), each of which is used for transmission by a specified remote; and dividing each subframe into smaller time units (time slots), each of which is assigned at initialization to one application via non-packetized messages from the master.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>‘819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 3-7 (REM 0055993-55997).</p> <p>8/30/89 Amendment at 2-4, 7-11 (REM 0056095-56097, 56100-56104).</p> <p>10/13/89 Office Action at 3-6 (REM 0056107-56110).</p> <p>2/13/90 Amendment at 2-7 (REM0056173-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence</u></p> <p>11/8/06 Deposition of Joseph King at 54:24 – 55:8; 59:17 – 63:7; 66:22 – 67:19; 117:8 – 119:9 (rough).</p>
<p>time slot assigned to each of said application programs (claim 1)</p>	<p><u>Proposed construction</u></p> <p>A “time slot” is an interval of time during which data from an application program is transmitted; rest of limitation is ordinary meaning</p>	<p><u>Proposed construction</u></p> <p>An interval of time is assigned at initialization to each application program.</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Intrinsic Evidence</u></p> <p>Abstract; 1:45-2:33; 2:68-3:11; 3:59-65; 4:53-66; 5:14-23; 5:40-56; 6:49-57; 6:66-7:14</p> <p><u>Extrinsic Evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "timeslot")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "time slot")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "time slot")</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p>	<p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p> <p>'819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 3-7 (REM 0055993-55997).</p> <p>8/30/89 Amendment at 2-4, 7-11 (REM 0056095-56097, 56100-56104).</p> <p>10/13/89 Office Action at 3-6 (REM 0056107-56110).</p> <p>2/13/90 Amendment at 2-7 (REM0056173-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence</u></p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
reservation request generator (claim 2)	<p><u>Proposed construction</u></p> <p>a device or process that adds to a message a request for additional time slots</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; Figs. 2 & 4, element 54; 1:63-2:1; 2:18-26; 4:3-14; 4:53-61; 5:59-6:24; 6:66-:14</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 133:7-134:21.</p>	<p>11/8/06 Deposition of Joseph King at 54:24 – 55:8, 59:17 – 63:7, 66:22 – 67:19, 117:8 – 119:9 (rough); 64:3-22 (final).</p> <p><u>Proposed construction</u></p> <p>At this time, Comcast does not believe this term requires construction, but provides the following proposed construction in response to Rembrandt’s request to construe the term.</p> <p>A device or process that sets reservation bits in a message to request additional time slots.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘819 Patent</p> <p>Abstract; Figs. 8-9; columns and lines 1:45-2:34; 2:18-25; 2:50-51; 2:61-68; 3:7-11; 3:35-37; 3:59-65; 4:6-16; 4:57-61; 4:64-67; 5:57-6:24; 6:11-6:24; 6:57-63; 6:66-7:14.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 912 (6th ed. 1996) (“request message”) (sole definition).</p>
reservation request processor	<p><u>Proposed construction</u></p>	<p><u>Proposed construction</u></p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
(claim 2)	<p>a device or process for receiving and processing requests for additional time slots from a reservation request generator</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; Figs. 1 & 3, element 14; 1:63-2:1; 2:18-26; 3:7-11; 4:53-61; 5:59-6:24; 6:66-7:14</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 133:7-134:21.</p>	<p>At this time, Comcast does not believe this term requires construction, but provides the following proposed construction in response to Rembrandt’s request to construe the term.</p> <p>A device or process that can grant a request from a remote unit for more time slots in order for the remote unit to transmit a longer message.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘819 Patent</p> <p>Abstract; Figs. 8-9; columns and lines 1:45-2:34; 2:18-25; 2:50-51; 2:61-68; 3:7-11; 3:35-37; 3:59-65; 4:6-16; 4:57-61; 4:64-67; 5:57-6:24; 6:11-6:24; 6:57-63; 6:66-7:14.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 912 (6th ed. 1996) (“request message”) (sole definition).</p>
priority bit (claim 11)	<p><u>Proposed construction</u></p> <p>One or more communication bits that are used to convey the relative importance of the communication</p> <p><u>Intrinsic Evidence</u></p>	<p><u>Proposed construction</u></p> <p>A bit that defines the importance of a given remote unit relative to other remote units.</p> <p><u>Intrinsic Evidence:</u></p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit (claim 1)</p>	<p>FIG. 5; 1:63-2:1; 2:18-26; 2:68-3:6; 4:62-5:3; 5:10-23; 5:40-45; 5:59-6:24; 6:52-7:14</p> <p><u>Extrinsic Evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "priority")</p> <p>Von Nostrand's Dictionary of Information Technology (3rd Ed.)(1989)(definition of "priority")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "priority")</p>	<p>'819 Patent</p> <p>Abstract; Figs. 5-9; columns and lines 1:45-2:34; 2:66-3:6; 4:62-5:24; 5:39-45; 5:53-6:24; 6:1-10; 6:53-7:14.</p>
<p>master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit (claim 1)</p>	<p><u>Proposed construction</u></p> <p>"master network timing means" is a clock for determining network timing or for delineating time into time slots; rest of limitation is construed according to ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>claim 10; FIGS. 1 & 3, element 12; 2:60-3:6; 5:15-24; 6:32-42; claim 3</p> <p><u>Extrinsic Evidence</u></p> <p>Von Nostrand's Dictionary of Information Technology</p>	<p><u>Proposed construction</u></p> <p>This is a means-plus-function term subject to construction under 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Dividing the period into subframes, and the subframes further into time slots, and assigning a time slot to each application.</p> <p><u>Structure:</u></p> <ul style="list-style-type: none"> • Network Timing Control Processor 12. See '819 Patent

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>(3rd Ed.)(1989)(definition of "master clock")</p> <p>McGraw-Hill Dictionary of Scientific and Technologic Terms (4th Ed.)(1989) (definition of "master clock")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "master clock")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "master clock")</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p> <p>Testimony of Dr. V. Thomas Rhynne regarding the meaning of this claim term</p> <p><i>Rembrandt does not believe this limitation is subject to construction under 35 U.S.C. § 112, ¶ 6. Nonetheless, Rembrandt reserves the right to argue that should this limitation be governed by § 112, ¶ 6, it should be construed as follows:</i></p> <p><i>Function: determining master network timing</i></p> <p><i>Structure: FIGS. 1 & 3, element 12; 2:60-3:6; 5:15-24; 6:32-42</i></p>	<p>at Figs. 1, 3; 2:60-3:6; 3:12-24; 5:15-24; 5:29-34.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-9; columns and lines 1:45-2:34; 2:44; 2:66-3:24; 3:59-65; 4:53-6:24; 6:37-39; 6:49-7:14; 7:22-25; 7:40-44.</p> <p>8/30/89 Amendment at 2, 8-9 (REM 0056095, 56101-56102).</p> <p>10/13/89 Office Action at 2-4 (REM 0056106-56108).</p> <p>2/13/90 Amendment at 2, 6-7 (REM 0056173, 56177-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p> <p>11/8/06 Deposition of Joseph King at 81:5 – 82:2 (rough); at 126:4-14; 143:6-19 (final).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>ranging means communicating with said master network timing means wherein a transmission time between said master unit and each of said respective remote units is calculated and transmitted from said master unit to each of said respective remote units (claim 1)</p>	<p><u>Proposed construction</u></p> <p>"ranging means" is a device or process that determines a transmission time between the master unit and a remote unit; rest of limitation is construed according to ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIGS 1 & 3, elements 12, 20, 32; 1:63-2:17; 2:57-3:6; 3:25-29; 3:42-49; 4:62-5:3; 5:24-34; 6:32-36</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhynne regarding the meaning of this claim term</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 69:5-10</p> <p><i>Rembrandt does not believe this limitation is subject to construction under 35 U.S.C. § 112, ¶ 6. Nonetheless, Rembrandt reserves the right to argue that should this limitation be governed by § 112, ¶ 6, it should be construed as follows:</i></p> <p><i>Function: (performing) ranging</i></p> <p><i>Structure: FIGS 1 & 3, elements 12, 20, 32; 1:63-2:17;</i></p>	<p><u>Proposed construction</u></p> <p>This is a means-plus-function term subject to construction under 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Calculating and transmitting to each remote the time it takes to transmit between the master and that remote.</p> <p><u>Structure:</u></p> <ul style="list-style-type: none"> • Network Timing and Control Processor 12. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-24; 5:14-33. • Aggregate Rate Multiplexer 16. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-24. • Ranging and Network Initialization Generator 20. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-19. • Time Division Multiplexed Modulator 22. <i>See</i> '819 Patent at Figs. 1, 3; 3:19-24; 3:50-52. • Equalizer 24. <i>See</i> '819 Patent at Figs. 1, 3; 3:30-33; 4:17-18; 4:20-26; 5:34-38. • Automatic gain control 26. <i>See</i> '819 Patent at Figs. 1, 3; 3:33-34; 4:20-31; 5:34-38.

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	2:57-3:6; 3:25-29; 3:42-49; 4:62-5:3; 5:24-34; 6:32-36;	<ul style="list-style-type: none"> • Demodulator 28. <i>See</i> '819 Patent at Figs. 1, 3; 3:33-38. • Ranging receiver 32. <i>See</i> '819 Patent at Figs. 1, 3; 3:35-38; 3:42-45; 4:20-26. <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 7; columns and lines 1:45-2:34; 3:12-38; 3:42-45; 3:50-52; 3:65-4:2; 4:17-18; 4:20-31; 5:1-3; 5:14-56; 5:46-52; 6:32-36.</p> <p>'819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 2, 4-5 (REM 0055992, 55994-55995).</p> <p>8/30/98 Amendment at 2, 6, 8-10 (REM 0056095, 56099, 56101-56103).</p> <p>10/13/89 Office Action at 2-4 (REM 0056106-56108).</p> <p>2/13/90 Amendment at 2, 6-7 (REM 0056173, 56177-56178).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>U.S. Patent No. 4,606,023 (Dragoo) (REM 0055999-56007).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>
<p>means for calculating clock drifts of the remote units and issuing reset commands to correct the same (claim 12)</p>	<p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: determining a drift time between the master clock and a remote clock and issuing one or more commands to correct the drift</p> <p>Structure: network timing control processor 12, configured with software to determine a drift time between the master clock and a remote clock, and to issue one or more commands to correct the drift time</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhynne regarding the structures corresponding to the recited function</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Fig. 8; columns and lines 1:45-2:34; 2:61-68; 3:25-29; 5:1-3; 7:15-20.</p> <p>'819 Prosecution History</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>8/30/98 Amendment at 4, 6 (REM 0056097, 56099).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding whether one of ordinary skill in the art would understand the patent specification to disclose any structures corresponding to this means-plus-function claim term.</p> <p>11/8/06 Deposition of Joseph King at 81:5 – 82:2 (rough).</p>

United States Patent No. 5,719,858

<p>‘858 Patent Claim Terms</p>	<p>Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence</p>	<p>Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence</p>
<p>time-division multiplexed bus (claims 1, 7, 9, 11, 15, 20)</p>	<p><u>Proposed construction</u> a bus having a bandwidth partitioned into regular time slots, that is shared by two or more sources of data by limiting each source's transmission opportunities to discrete intervals of time</p> <p><u>Intrinsic Evidence</u> FIGS. 3 & 4, element 204; FIGS. 5 & 7; Abstract; 2:42-65; 3:39-61; 4:25-36; 5:43-6:5; 6:36-41; 6:52-64; 11:12-17</p> <p><u>Extrinsic Evidence</u> Dictionary of Computing (4th Ed.)(1996)(definition of “time division multiplexing”) 11/8/06 Deposition of Joseph King (rough transcript) at 49:9-52:11</p>	<p><u>Proposed construction</u> A group of one or more conductors that is shared among several users by allowing each user to use the bus for a given period of time in a defined, repeated sequence.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent Abstract; Figs. 1-3, 5-7; columns and lines 1:6-12; 1:28-64; 2:15-39; 2:41-3:12; 3:25-27; 3:39-61; 4:25-36; 4:47-51; 4:56-6:5; 6:37-8:45; 9:17-38; 10:43-57; 11:3-37.</p> <p>‘858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-4 (REM 0056522-56524). 8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643). 10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648). U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1115 (6th ed. 1996) ("time division multiplexing (TDM)") (1st definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 117 (6th ed. 1996) ("bus") (3rd definition).</p> <p>NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1377 (5th ed. 1993).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>portion of the [predefined] bandwidth (claims 1, 7, 9, 11, 15, 20)</p>	<p><u>Proposed construction</u> one or more time slots in a TDM frame assigned to a</p>	<p><u>Proposed construction</u> The part, but less than all, of the data transfer capacity of</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>group of data sources; see below for "predefined bandwidth"</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; 2:49-57; 4:56-62; 5:11-42; 6:15-24; 11:12-17</p>	<p>the bus that is allotted either to packet data or to synchronous data.</p> <p><u>Intrinsic Evidence:</u></p> <p>'858 Patent</p> <p>Abstract; Figs. 1-3, 5-7; columns and lines 1:6-3:12; 3:39-53; 4:37-5:42; 6:6-52; 11:3-37.</p> <p>'858 Prosecution History</p> <p>7/31/95 Patent Application at 15-18 (REM 0056495-56498).</p> <p>4/4/97 Office Action at 2-5 (REM0056522-56525).</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 905 (10th ed. 1993) ("portion") (1st and 3rd definitions).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>MICROSOFT COMPUTER DICTIONARY 50 (5th ed. 2002) ("bandwidth") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>predefined bandwidth (claims 7, 9, 11)</p>	<p><u>Proposed construction</u> a TDM frame with a fixed number of time slots</p> <p><u>Intrinsic Evidence</u> Abstract; 2:49-57; 4:56-62; 5:11-42; 6:15-24; 11:12-17</p>	<p><u>Proposed construction</u> Data transfer capacity fixed in advance of operation.</p> <p><u>Intrinsic Evidence:</u></p> <p>'858 Patent Abstract; Figs. 1-3, 5-7; columns and lines 1:6-3:12; 3:39-53; 4:37-5:42; 6:6-52; 11:3-37.</p> <p>'858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-5 (REM0056522-56525).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 913 (10th ed. 1993) ("pre-") (1st definition).</p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 302 (10th ed. 1993) ("define") (2nd definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 50 (5th ed. 2002) ("bandwidth") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
packet data	<u>Proposed construction</u>	<u>Proposed construction</u>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
(claims 1, 7, 9, 11, 15, 20)	<p>variable bit rate data</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; 1:6-11; 1:17-26; 3:53-56</p> <p><u>Extrinsic Evidence</u></p> <p>Newton’s Telecom Dictionary (7th Ed.)(1994)(definition of “VBR”)</p> <p>Longman Illustrated Dictionary of Computer Science (1987) (definition of “asynchronous”)</p> <p>Acampora at 2:22-32</p> <p>COMREM976690-977133</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 41:19-22</p>	<p>Data that is transmitted in packets.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent</p> <p>Abstract; Figs. 1-3, 5; columns and lines 1:6-11; 1:17-24; 1:28-29; 1:34-39; 2:41-3:12; 3:39-51; 4:4-6; 4:11-17; 4:19-28; 4:39-55; 4:56-5:42; 6:15-24; 6:34-36; 6:44-50; 7:13-20; 9:63-10:2; 10:11-30; 11:3-37; 12:20-29; 12:62-13:1.</p> <p>‘858 Prosecution History</p> <p>7/31/95 Patent Application at 15-18 (REM 0056495-56498).</p> <p>4/4/97 Office Action at 2-4 (REM 0056522-56524).</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (1st definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (3rd definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (6th definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (7th definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (10th definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 385 (5th ed. 2002) ("packet") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>synchronous data (claims 7, 9, 11)</p>	<p><u>Proposed construction</u> constant bit rate data</p> <p><u>Intrinsic Evidence</u> Abstract; 1:6-11; 1:17-26; 3:48-51</p> <p><u>Extrinsic Evidence</u> Newton's Telecom Dictionary (7th Ed.)(1994)(definitions of "synchronous", "synchronous data network", "CBR") Dictionary of Computing (4th Ed.)(1996)(definition of "time division multiplexing") The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "synchronous") Longman Illustrated Dictionary of Computer Science (1987) (definition of "synchronous") Von Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definitions of "synchronous", "synchronous data network", "synchronous modem", "synchronous time division multiplexing", "synchronous</p>	<p>MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p> <p><u>Proposed construction</u> Constant bit rate data that is not transmitted in packets.</p> <p><u>Intrinsic Evidence:</u> '858 Patent Abstract; Figs. 1-3, 5; columns and lines 1:6-11; 1:17-23; 1:28-29; 1:34-39; 2:41-3:12; 3:39-51; 4:4-6; 4:11-17; 4:19-28; 4:39-55; 4:56-5:42; 6:15-24; 6:34-36; 6:44-50; 7:13-20; 9:63-10:2; 10:11-30; 11:3-37; 12:20-29; 12:62-13:1.</p> <p>'858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-4 (REM 0056522-56524). 8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643). 10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648). U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>transmission")</p> <p>Acampora at 2:22-32</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 41:14-18; 77:23-78:24</p>	<p>56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1075 (6th ed. 1996) ("synchronous") (1st definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 38 (5th ed. 2002) ("asynchronous") (sole definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>distributed packet manager (claims 1, 7)</p>	<p><u>Proposed construction</u></p> <p>a device, process or algorithm that is located within each packet data source, that controls how the packet data source accesses a portion of the bandwidth assigned to packet data</p> <p><u>Intrinsic Evidence</u></p>	<p><u>Proposed construction</u></p> <p>A decentralized mechanism that performs all the functions required to aggregate and synchronize packet data to the time-division multiplexed bus and to prevent packet collisions.</p> <p><u>Intrinsic Evidence:</u></p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Abstract; FIG. 3, elements 216-n; FIG. 4, PACKET MANAGER; FIG. 6; FIG. 8; 2:53-3:12, 3:51-4:36; 4:56-5:10; 6:6-15; 6:41-10:42</p> <p><u>Extrinsic Evidence</u></p> <p>Von Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definition of "distributed function")</p> <p>Dictionary of Computer and Internet Terms (5th Ed.)(1996)(definition of "distributed")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "distributed function")</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 177:11-178:20</p>	<p>'858 Patent</p> <p>Abstract; Figs. 1-4, 8A-8C; columns and lines 1:6-3:12; 3:23-24; 3:34-36; 3:51-4:36; 4:56-5:10; 6:6-10:43.</p> <p>'858 Prosecution History</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
allocate access to the allotted bandwidth among	<u>Proposed construction</u>	<u>Proposed construction</u>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>said packet data sources (claim 1)</p> <p>allocate access to the second portion of the predefined bandwidth among said packet data sources (claim 7)</p> <p>controlling [the] access by said packet data sources to the allocated portion of the bandwidth (claims 15, 20)</p>	<p>Controlling access by each of the packet data sources to the portion of bandwidth previously assigned to packet data</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIGS. 6 & 8, 2:49-57; 2:66-3:3; 4:56-5:5; 6:6-14; 6:41-10:42</p> <p><u>Extrinsic Evidence</u></p> <p>Van Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definition of “allocate”)</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of “allocate”)</p> <p>Longman Illustrated Dictionary of Computer Science (1987) (definition of “allocate”)</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 177:11-178:20</p>	<p>Apportion to each of the packet data sources sole permission to attempt to transmit in the portion of bandwidth previously assigned to packet data.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent</p> <p>Abstract; Figs. 1-4, 8A-8C; columns and lines 1:6-3:12; 3:23-24; 3:34-36; 3:51-4:36; 4:56-5:10; 5:11-20; 5:30-32; 6:6-10:43.</p> <p>‘858 Prosecution History</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM0056633-56643).</p> <p>10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER’S COLLEGIATE DICTIONARY 30 (10th ed. 1993) (“allocate”) (1st definition).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 6 (10th ed. 1993) ("access") (2nd definition).</p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 252 (10th ed. 1993) ("control") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>network access manager (claim 8)</p> <p>network access module (claim 26)</p>	<p><u>Proposed construction</u></p> <p>a device, process or algorithm for controlling the assignment of synchronous and/or packet data portions on a TDM bus, and for passing data between the bus and a network</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIG. 3, element 205; 1:12-26; 2:49-65; 3:39-48; 4:62-5:2; 5:11-20; 9:22-30;</p>	<p><u>Proposed construction</u></p> <p>At this time Comcast does not believe this term needs to be construed, but reserves its right to argue its ordinary meaning and to counter Rembrandt's proposed construction.</p>

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP
Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP
Defendants.

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Civil Action No. 2-05CV-443
Judge T. John Ward

Jury Demand

ORDER

Plaintiff Rembrandt Technologies, LP and Defendants Comcast Corporation; Comcast Cable Communications; LLC; and Comcast of Plano, LP, filed a Joint Motion to Submit a Second Amended Joint Claim Construction and Prehearing Statement. The Court, having reviewed the motion, and being well-advised, finds that the motion should be **GRANTED**.

It is therefore **ORDERED, ADJUDGED and DECREED** that the parties' Joint Motion to Submit a Second Amended Joint Claim Construction and Prehearing Statement is **GRANTED**.

SO ORDERED.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Defendants.

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Civil Action No. 2-05CV-443

Judge T. John Ward

Jury Demand

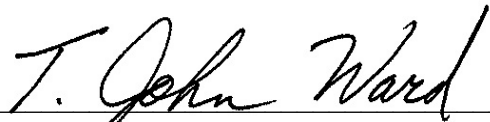
ORDER

Plaintiff Rembrandt Technologies, LP and Defendants Comcast Corporation; Comcast Cable Communications; LLC; and Comcast of Plano, LP, filed a Joint Motion to Submit a Second Amended Joint Claim Construction and Prehearing Statement. The Court, having reviewed the motion, and being well-advised, finds that the motion should be **GRANTED**.

It is therefore **ORDERED, ADJUDGED and DECREED** that the parties' Joint Motion to Submit a Second Amended Joint Claim Construction and Prehearing Statement is **GRANTED**.

SO ORDERED.

SIGNED this 23rd day of January, 2007.



T. JOHN WARD

UNITED STATES DISTRICT JUDGE

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Civil Action No. 2:05-cv-00443-TJW

**SECOND AMENDED JOINT CLAIM CONSTRUCTION AND PREHEARING
STATEMENT**

Pursuant to Eastern District of Texas Patent Rule 4-3, Plaintiff Rembrandt Technologies LP (“Rembrandt”), and Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP (collectively “Comcast”) hereby provide their Joint Claim Construction and Prehearing Statement.

I. AGREED CLAIM CONSTRUCTIONS

The parties have agreed that certain claim terms, phrases, or clauses that were the subject of the parties’ Patent Rule 4-2 Exchange do not presently require construction by the Court, and have removed those claim terms, phrases, or clauses from the charts attached to this pleading.

The parties have also agreed as to the function of certain of the means-plus-function terms in the patents-in-suit. Because the corresponding structure remains in dispute, these terms are listed in exhibit A, attached.

II. DISPUTED CLAIM CONSTRUCTIONS

The parties have set forth their proposed constructions, including the intrinsic and extrinsic evidence relied upon in support thereof, in Exhibit A, attached. The parties reserve the right to rely on any evidence cited by either party. The parties further reserve

the right to offer rebuttal expert testimony on any claim term for which the other party offers expert testimony.

III. ANTICIPATED LENGTH OF CLAIM CONSTRUCTION HEARING

The parties believe that it would be appropriate for the Court to allocate four hours to the claim construction hearing, with two hours allocated to each side, including reserved rebuttal time.

IV. CLAIM CONSTRUCTION WITNESSES

The parties do not anticipate calling live witnesses at the claim construction hearing except as the Court may request. If so requested, Rembrandt would present the testimony of Dr. V. Thomas Rhyne. Comcast would present the testimony of Dr. Curtis A. Siller, Jr., and Dr. Harry Bims.

V. CLAIM CONSTRUCTION PREHEARING CONFERENCE

The parties do not believe a claim construction prehearing conference is needed, except at the request of the Court.

Dated: January 22, 2007

Respectfully submitted,

By: /s/ Thomas A. Brown

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served by electronic filing to all counsel of record on this 22nd day of January, 2007. Any counsel not served through electronic filing will be served by first-class mail this 22nd day of January, 2007.

/s/ Thomas A. Brown

Thomas A. Brown

EXHIBIT A: DISPUTED CLAIM TERMS**United States Patent No. 5,243,627**

‘627 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
trellis encoded channel symbol (claims 9, 19)	<p><u>Proposed construction</u></p> <p>A set of one or more trellis encoded signal points that corresponds to a group of bits that is treated as a unit by an encoding system</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figures 1, 2, 3, 4, 5, 6, 7.</p> <p>Column 1, line 34 – column 2, line 50.</p> <p>Column 2, line 61 – column 3, line 3.</p> <p>Column 3, line 19 – column 4, line 24.</p> <p>Column 5, lines 1 – 41.</p> <p>Column 6, line 46 – column 9, line 51.</p> <p>Claims 1, 3, 11, 13, 21 and 23.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 5,559,561 (REM0086656-REM0086673)</p>	<p><u>Proposed construction</u></p> <p>The output of a mapper that is generated using the output(s) of a single state transition of a trellis encoder.</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract</p> <p>Col 1 Lns. 38-44; 48-58; 59</p> <p>Col 2 Ln 2; 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3;</p> <p>Col 4 Lns 4-11; 12-24; 56-59; 61-62</p> <p>Col 5 Lns 4-9; 13-30</p> <p>Col 6 Lns 3-23; 36-39; Ln 55 – Col 7 Ln 6</p> <p>Col 7 Lns 9-18; 25-32; 33-54; Ln 55 – Col 8 Ln 9</p> <p>Col 8 Lns 14-35; 38-56; 58 – Col 9 Ln 13</p> <p>Col 9 Lns 14-28; 36-44</p> <p>Figures 1-7</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 1072 (6th ed. 1996) (“Symbol”) (5th)</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>U.S. Patent No. 5,706,312 (REM0086674-REM0086687)</p> <p>U.S. Patent No. 5,512,957 (REM0086636-REM0086655)</p> <p>802.14 PHY Proposal, Thomas Kolze (Cable TV Protocol Working Group), October 1995 (COMREM00669632-COMREM00669645).</p> <p>Dolinar and Belongie. Enhanced Decoding for the Galileo S-band Mission, August 1993. (REM0086691-REM0086706)</p> <p>Blue Book, Issue-3, Telemetry Channel Coding.</p> <p>Consultative Committee for Space Data Systems, May 1992. (REM0086940-0086981)</p> <p>Technical Report Number 59, Signal Carrier Rate Adaptive Digital Subscriber Line, September 1999. (REM0086707-REM0086896)</p> <p>Data Over Cable Systems Radio Frequency Interface Specification 1.1, Engineering Committee, 2002 (COMREM00845847-COMREM0084624)</p> <p>Data Over Cable Service Interface Specifications 2.0, Radio Frequency Interface Specification, 2003 (REM0065021-REM0065532)</p>	<p>definition).</p> <p>JERRY MARTIN ROSENBERG, DICTIONARY OF COMPUTERS, DATA PROCESSING, AND TELECOMMUNICATIONS 518 (1984). ("Symbol") (3rd definition).</p> <p>JERRY MARTIN ROSENBERG, DICTIONARY OF COMPUTERS, DATA PROCESSING, AND TELECOMMUNICATIONS 479 (1984) ("Signal element") (3rd definition).</p> <p>EZIO BIGLIERI, ET AL., INTRODUCTION TO TRELLIS-CODED MODULATION WITH APPLICATIONS 72-73 (1991).</p> <p>RICHARD D. GITLIN, ET AL., DATA COMMUNICATION PRINCIPLES 355-356 (1992).</p> <p>U.S. Patent No. 4,945,549 at Fig. 1; Col. 4 Lns. 4-31 (filed Sep. 15, 1988).</p> <p>U.S. Patent No. 4,922,507, at Col. 4, Lns. 37-56 (filed Dec. 1, 1987).</p> <p>U.S. Patent No. 5,023,889, at Col. 3, Ln. 38 - Col. 4, Ln. 28 (filed May 31, 1988).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>Chung, et al., U.S. Patent No. 5,214,656.</p> <p>Wang, et al., U.S. Patent No. 5,052,000.</p> <p>12/19/06 Deposition of V. Thomas Rhynne, at 25:24-26:9.</p> <p>12/22/06 Deposition of Harry Bims, at 251:16-25.</p>
<p>signal point (claims 9, 19)</p>	<p><u>Proposed construction</u></p> <p>A value that is transmitted by a modulator in one signaling interval</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figures 1, 2, 3, 4, 5, 6 and 7</p> <p>Column 2, lines 5 – 50.</p> <p>Column 3, line 4 – column 4, line 51.</p> <p>Column 5, line 1 – column 6, line 26.</p> <p>Column 6, line 48 – column 9, line 51.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 5,559,561 (REM0086656-REM0086673)</p> <p>U.S. Patent No. 5,706,312 (REM0086674-REM0086687)</p>	<p><u>Proposed construction</u></p> <p>A single mapped point in a signal constellation.</p> <p><u>Extrinsic Evidence</u></p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 186-187 (1988).</p> <p>GILBERT HELD, DICTIONARY OF COMMUNICATIONS TECHNOLOGY 400 (2d ed. 1995) ("Signal constellation").</p> <p>RICHARD D. GITLIN, ET AL., DATA COMMUNICATION PRINCIPLES 355-356 (1992).</p> <p>Wang, et al., U.S. Patent No. 5,052,000.</p> <p>Wei, U.S. Patent No. 5,559,561.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>U.S. Patent No. 5,512,957 (REM0086636-REM0086655)</p>	<p>Col 1 Lns 29-33; 54-58 Col 2 Lns 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3 Col 3 Lns 4-10; 30-44; 56-60; 65 – Col 4 Ln 3 Col 4 Lns 4-11; 35-46 Col 5 Lns 24-41; 44 – Col 6 Ln 26 Col 6 Ln 48 – Col 8 Ln 9 Col 8 Lns 14-35; 38-56; 58 – Col 9 Ln 13 Col 9 Lns 14-28; 29-44; 45-49</p> <p>Figures 1-7</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p>
<p>Distributed Viterbi decoder (claims 9, 19)</p>	<p><u>Proposed construction</u></p> <p>A Viterbi decoder having multiple Viterbi decoding processes operating on separate portions of a stream of data to be decoded</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p> <p>Figure 3, 4, 5, 6 and 7.</p> <p>Column 1, line 34 – column 2, line 20.</p> <p>Column 4, line 52 – column 5, line 41.</p>	<p><u>Proposed construction</u></p> <p>Two or more Viterbi decoders operating in round-robin fashion on separate portions of a stream of encoded data.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract</p> <p>Col 1 Lns 29-33; 34-46; 59-65 Col 2 Lns 5-13; 14-18; 21-28; 31-50; 53 – Col. 4 Ln. 3 Col 6 Lns 12-26; 62-66 Col 8 Ln 58 – Col 9 Ln 13</p> <p>Figures 1, 3-4</p> <p>U.S. Patents Nos. 5,029,185; 3,988,677; 4,677,624; 4,677,625.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Column 6, lines 12 – 26.</p> <p>Column 6, line 48 – column 8, line 13.</p> <p>Column 8, line 57 – column 9, line 28.</p> <p>Column 9, line 52 – column 10, line 3.</p> <p>Prosecution History, Office Action Response dated December 21, 1992 at TKHR 0000886 – TKHR 0000890.</p> <p><u>Extrinsic Evidence</u></p> <p>U.S. Patent No. 4,677,625 (COMREM00669498-COMREM00669505)</p>	<p>pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>MICROSOFT COMPUTER DICTIONARY 167 (5th ed. 2002) ("Distribute").</p> <p>MERIAM-WEBSTER COLLEGIATE DICTIONARY 337 (10th ed. 2001) ("Distribute").</p> <p>WIKIPEDIA, available at http://en.wikipedia.org. ("Viterbi decoder").</p> <p>McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 2265 (6th ed. 2003) ("Viterbi algorithm").</p> <p>Explanation by Dr. Harry Bims of Viterbi decoding.</p>
<p>means for deinterleaving the inter-leaved signal points to recover said plurality of streams of trellis encoded channel symbols (claim 9)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: to reverse the process of interleaving performed in the transmitter to recover multiple streams of trellis encoded channel symbols from the interleaved signal points</p> <p>Structure: signal point deinterleaver 441 or switching circuit 431, or a software based deinterleaver or switching circuit, and equivalents</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract.</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Deinterleaving the interleaved signal points to recover the plurality of streams of trellis encoded channel symbols</p> <p><u>Structure:</u></p> <p>Figure 4 (Streams 456/442, Blocks 441/431, Elements 441/4412); Figure 7 (Streams 456/442, Block 741, Elements</p> <p>7411/7412/7413/7414); Col 2: Lns 39-42, 48-50; Col 5: Ln</p>

'627 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Figures 4, 5, 6 and 7.</p> <p>Column 5, line 67 – column 6, line 26.</p> <p>Column 8, line 57 – column 9, line 13.</p> <p>Column 9, line 45 – column 10, line 3.</p> <p>Refer also to intrinsic evidence cited in support of the claim terms “trellis encoded channel symbol” and “signal point”</p>	<p>67 - Col 6 Ln 20; Col 8: Ln 62 - Col 9 Ln 51.</p> <p>Intrinsic Evidence: Refer to intrinsic evidence cited in support of the claim terms: “trellis encoded channel symbols”; signal points”; and “plurality of streams of trellis encoded channel symbols”. Also columns and lines 1:59-2:13, 5:24-41, 5:67-6:2, 9:45-51, and 11:31.</p> <p>Prosecution History: December 21, 1992 <i>Amendment</i>, at pgs. 2-6; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms:</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

United States Patent No. 5,852,631

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>physical layer (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>The lowest layer of the Open Systems Interconnect (OSI) seven layer model, concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for</p> <p>Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction, with the clarification that negotiation of the physical layer modulation is not the same as the establishment of the connection.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract Col 1 Ln 62 – Col 2 Ln 11 Col 2 Lns 12-18; 33-39; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 4-13; 24-61 Col 5 Lns 5-24 Col 6 Lns 24-36; 37-56; 66 – Col 7 Ln 29 Col 10 Lns 57-59, 63 – Col 11 Ln 10 Col 11 Lns 23-28; 33-42 Col 12 Lns 43-54 Col 13 Lns 23-41</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>(REM0086902-REM0086909).</p> <p>Society of Cable Telecommunications Engineers, Cable-Tec Expo '98 (Denver Colorado, June 10-13, 1998) (COMREM 00982076-00982709).</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086899-REM0086900) (definition of "physical layer").</p> <p>DSET, LNP Automation Solution: Local Service Management System (LSMS) for Comcast (December 8, 2004) (COMREM00960142-COMREM00960170).</p>	<p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 203 (6th ed. 1996) ("Connection") (5th definition).</p>
<p>negotiated physical layer modulation (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>A physical layer modulation selected by a process permitting two modems supporting different physical layer modulations to agree on a common supported physical layer modulation.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of</p>	<p><u>Proposed construction</u></p> <p>A physical layer modulation agreed upon between two modems after exchanging information at run time.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract Col 1 Lns 17-21; 37-48; 49-51; 55-61; 62 – Col 2 Ln 11 Col 2 Lns 12-18; 33-39; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 24-61 Col 6 Lns 24-39; 37-56; 58-59; 66 – Col 7 Ln 2 Col 7 Lns 15-30 Col 8 Lns 23-41 Col 11 Lns 39-46</p> <p>Figures 1-8</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>November 21, 1997 (TKHR00000156-TKHR00000162); Response of January 22, 1998 (TKHR00000144-TKHR00000154); Office Action of February 19, 1998 (TKHR00000136-TKHR00000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>U.S. Patent No. 4,905,282 (REM0086910-REM0086924)</p> <p>U.S. Patent No. 5,491,720 (REM0086925-REM0086935)</p> <p>IEEE Std 802.3u-1995, § 28 (COMREM 671706-672120).</p> <p>Draft CEA-679-C, National Renewable Security Standard (NRSS) (COMREM50007474).</p> <p>Rembrandt incorporates by reference the intrinsic and extrinsic evidence cited for the term "physical layer modulation."</p>	<p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>Rejection</i>, September 4, 1997, at pgs. 4-6; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence</u>:</p> <p>"Negotiation": When a connection is established between the virtual terminals in different systems, an initial dialogue is needed to establish the parameters that each will use during the transaction. This is known as the negotiation phase." GILBERT HELD, DICTIONARY OF COMMUNICATIONS TECHNOLOGY 285 (2d ed. 1995).</p> <p>"Negotiate": To confer with another or others in order to come to terms or reach an agreement To arrange or settle by discussion and mutual agreement. THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1176 (4th ed. 2000).</p> <p>"Negotiate": to arrange for or bring about through conference, discussion, and compromise." MERIAM-WEBSTER COLLEGIATE DICTIONARY 775 (10th ed. 2001).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p> <p>12/19/06 Deposition of V. Thomas Rhynne, at 37:8-18.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>physical layer modulation (claims 1, 6, 10)</p>	<p><u>Proposed construction</u></p> <p>A protocol that is concerned with establishing the mechanical, electrical, functional, and procedural connection between two modems.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 2-8; 1:23-2:39; 2:62-3:15; 3:34-58; 4:5-18; 5:42-11:27; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for</p> <p>Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction, with the clarification that negotiation of the physical layer modulation is not the same as the establishment of the connection.</p> <p><u>Intrinsic Evidence:</u></p> <p>Abstract</p> <p>Col 1 Lns 17-20; 37-48; 49-51; 55-61; 62 – Col 2 Ln 11</p> <p>Col 2 Lns 12-18; 29-38; 39-59; 62 – Col 3 Ln 21</p> <p>Col 3 Lns 24-61</p> <p>Col 4 Lns 41-44, 48-51, 56-58</p> <p>Col 5 Lns 8-10, 24-25, 33-34; 49 – Col 6 Ln 11</p> <p>Col 6 Lns 12-23; 24-56; 57-65</p> <p>Col 7 Lns 15-30; 35-38;</p> <p>Col 8 Lns 23-41; 48-51</p> <p>Col 9 Lns 4-8; 15-22; 32-34, 38-46; 54-57, Col 10 Lns 1-4</p> <p>Col 10 Lns 26-31; 57 – Col 11 Ln 10</p> <p>Col 11 Lns 30-46</p> <p>Col 12 Lns 45-50; 59-65</p> <p>Col 13 Lns 23-41</p> <p>Col 14 Lns 1-5</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Society of Cable Telecommunications Engineers, Cable-Tec Expo '98 (Denver Colorado, June 10-13, 1998) (COMREM 00982076-00982709).</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086899-REM0086900) (definition of "physical layer").</p> <p>DSET, LNP Automation Solution: Local Service Management System (LSMS) for Comcast (December 8, 2004) (COMREM00960142-COMREM00960170).</p>	<p>on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS 662 (6th ed. 1996) ("Modulation") (1st and 5th definitions).</p> <p>MICROSOFT COMPUTER DICTIONARY 346 (5th ed. 2002) ("Modulation") (2nd definition).</p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 679 (1988).</p> <p>WILEY ENCYCLOPEDIA OF ELECTRICAL AND ELECTRONICS ENGINEERING 668 (John G. Webster, ed.) (1999).</p> <p>ANDREW S. TANENBAUM, COMPUTER NETWORKS 29-30 (3d ed. 1996).</p> <p>THE COMMUNICATIONS HANDBOOK 573 (Jerry D. Gibson, ed.) (1996).</p>
<p>link layer (claims 1, 3, 4, 6, 8, 9, 10)</p>	<p><u>Proposed construction</u></p> <p>The second lowest layer of the Open Systems Interconnect (OSI) seven layer model, providing the functional and procedural means to transfer data between modems, and to detect and correct errors that can occur in the physical layer.</p>	<p><u>Proposed construction</u></p> <p>The link layer is the second lowest layer of the OSI seven layer model and is provided to perform error checking functions as well as retransmitting frames that are not received correctly.</p> <p><u>Intrinsic Evidence:</u></p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 2-8; 1:23-61; 2:40-59; 2:62-3:15; 3:34-58; 4:5-18; 11:30-13:41; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086897-REM0086898) (definition of "link layer").</p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (REM0086897-REM0086898).</p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p> <p>In-Taek Lim & Jeong-Seok Heo, "Performance Analysis</p>	<p><u>Abstract</u></p> <p>Col 1 Lns 17-21; 27-48; 51-54; 55-61 Col 2 Lns 6; 39-59; 62 – Col 3 Ln 21 Col 3 Lns 24-61 Col 6 Lns 57-65 Col 11 Lns 23-28; 30-51; 52-58; 59 – Col 12 Ln 8 Col 12 Lns 9-36, 36 – Col 13 Ln 4</p> <p>Figures 1-8</p> <p>U.S. Patents Nos. 4,905,282; 5,425,080; 5,710,761.</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>EDWARD A. LEE, DIGITAL COMMUNICATION 679 (1988).</p> <p>WILEY ENCYCLOPEDIA OF ELECTRICAL AND ELECTRONICS ENGINEERING 668, 670 (John G. Webster, ed.) (1999).</p> <p>THE COMMUNICATIONS HANDBOOK 573 (Jerry D. Gibson, ed.) (1996).</p> <p>ANDREW S. TANENBAUM, COMPUTER NETWORKS 30 (3d ed. 1996).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>of CDMA_ALOHA/FEC Scheme in the Centralized Packet Radio Networks," International Conference on Information, Communications and Signal Processing, September 9-12, 1997 (REM0087187-REM0087191).</p>	<p>ELECTRONIC TERMS 203 (6th ed. 1996) ("Connection") (5th definition).</p> <p>Hubert Zimmermann, "OSI Reference Model—The ISO Model of Architecture for Open Systems Interconnection," IEEE Transactions on Communications, vol. 28, No. 4, April 1980, pp. 425-432 (REM0086902-REM0086909).</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>means for establishing a physical layer connection between said calling and said answer modems, wherein said physical layer connection is based on a negotiated physical layer modulation chosen from said first and second physical layer modulations (claim 6)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Establishing a physical layer connection based on a negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to execute any one of the four algorithms depicted in the following excerpts from the '631 patent, or equivalent structures:</p> <p>FIG. 4, boxes labeled "Finish dialing and send Clqck-cell signal (1500 & 1900)," "1680 Hertz," "800 Hertz," "Detect other answer signal"; "Perform modem startup and training"; "Synchronize to alternative modulation standard"; or FIG. 5, boxes labeled "Clqck signal received within two seconds," "Standard automode, send ans (2100 Hz)," "Send ANSqck (V.34 S signal)," "Perform Modem</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p>Function:</p> <p>Establishing a physical layer connection based on a negotiated physical layer modulation.</p> <p>Structure:</p> <p>Figs. 4-9; Col. 8, Ln. 23-Col. 9, Ln. 8; Col. 9, Lns. 15-46; Col. 9, Ln. 47-Col. 10, Ln. 56.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "physical layer connection"; "negotiated physical layer modulation"; "physical layer modulation"; "based on".</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Startup and Training"; or FIG. 6, boxes labeled "Send Clqck-Central," "ANS detected?," "ETC1 (V.32bis training); "ANSam detected?"; "V.34 startup," "ANSqck detected (1680)," "Startup under alternative standard," "Begin ETC2 startup and training"; or FIG. 7, boxes labeled "CI of V.34 detected," "V.34 send ANSam," "Clc1c1 detected," "ETC1 mode, send 'ans,'" "Clqck-cell detected (1500 & 1900)," "Send ANSqqk-PSTN," "Send ANSqqk (V.34 S signal) (1680 Hz)," "ETC2 Startup (Send S signal)."</p> <p><u>Intrinsic evidence</u></p> <p>Abstract, FIGS 1-9; 1:23-2:39; 2:62-3:15; 3:31-62; 4:5-18; 5:42-11:27; 13:42-14:19; claims 1, 2, 6, 7, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhynne regarding the structures corresponding to the recited function.</p> <p>Rembrandt incorporates by reference its intrinsic and</p>	<p>on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>extrinsic support for the claim terms: "physical layer"; "negotiated physical layer modulation"; "physical layer modulation"; and "establishing said link layer connection based upon said negotiated physical layer modulation."</p>	
<p>means for establishing said link layer connection based upon said negotiated physical layer modulation (claim 6)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Establishing the link layer connection based upon the negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to establish a link layer connection substantially instantaneously upon the completion of the physical layer negotiation, or equivalent structures.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 1-9; 1:23-61; 2:40-59; 2:62-3:15; 3:31-62; 4:5-18; 11:30-14:19; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR0000181-TKHR0000189); Response of October 23, 1997 (TKHR0000165-TKHR0000179); Office Action of November 21, 1997 (TKHR0000156-TKHR0000162); Response of January 22, 1998 (TKHR0000144-TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Establishing link layer connection based upon negotiated physical layer modulation.</p> <p><u>Structure:</u></p> <p>Figs. 8-9; Col. 11, Lns. 45-46; Col. 12, Ln. 55-Col. 13, Ln. 17; Col. 13, Lns. 34-41; Col. 13, Ln. 55-Col. 14, Ln. 9.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "negotiated physical layer modulation"; "physical layer modulation"; "based upon"; "link layer connection".</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23, 1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Extrinsic evidence:</u></p> <p>Testimony of Dr. V. Thomas Rhyme regarding the structures corresponding to the recited function.</p>	<p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms. Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>
<p>means for presetting link layer parameters of said link layer connection to pre-defined settings based on said negotiated physical layer modulation (claim 9)</p>	<p><u>Proposed construction</u></p> <p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: Presetting link layer parameters based on the negotiated physical layer modulation</p> <p>Structure: a control processor or digital signal processor chip configured to preset XID phase parameters to default values that are based upon the negotiated physical layer connection, and equivalent structures.</p> <p><u>Intrinsic evidence</u></p> <p>Abstract; FIGS. 1-9; 1:23-61; 2:40-59; 2:62-3:15; 3:31-62; 4:5-18; 11:30-14:19; claims 1, 3, 4, 6, 7, 9, and 10</p> <p>Office Action of September 4, 1997 (TKHR00000181-TKHR00000189); Response of October 23, 1997 (TKHR00000165-TKHR00000179); Office Action of November 21, 1997 (TKHR00000156-TKHR00000162); Response of January 22, 1998 (TKHR00000144-</p>	<p><u>Proposed construction</u></p> <p>Means plus function claim to be construed pursuant to § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Presetting link layer parameters based on negotiated physical layer modulation.</p> <p><u>Structure:</u></p> <p>Figs. 8-9; Col. 12, Ln. 55-Col. 13, Ln. 17; Col. 13, Lns. 34-41; Col. 13, Ln. 55-Col. 14, Ln. 9.</p> <p><u>Intrinsic Evidence:</u> Refer to intrinsic evidence cited in support of the claim terms: "link layer parameters"; "negotiated physical layer modulation"; "physical layer modulation"; "based on"; "link layer connection";</p> <p>Prosecution History: <i>Preliminary Amendment</i>, submitted on March 20, 1997, at pg. 2; <i>First Response With Amendments</i>, submitted on October 23, 1997, at pgs. 5-13; <i>Response to Final Rejection</i>, submitted on January 23,</p>

'631 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>TKHR0000154); Office Action of February 19, 1998 (TKHR0000136-TKHR0000143); Response of April 23, 1998.</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhyme regarding the structures corresponding to the recited function.</p>	<p>1998, at pgs. 2-10; <i>Third Response</i>, submitted on April 23, 1998, at pg. 3; <i>Transmittal of New Drawings</i>, submitted on July 27, 1998; <i>Notice of Allowability</i>.</p> <p><u>Extrinsic Evidence:</u></p> <p>Extrinsic evidence cited above relating to component terms.</p> <p>Expert opinion of Dr. Harry Bims regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>

United States Patent No. 4,937,819

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>application program[s] (claims 1, 14)</p>	<p><u>Proposed construction</u> a computer program or process</p> <p><u>Intrinsic Evidence</u> Abstract; FIG. 5; 1:7-12; 1:14-25; 1:45-52; 1:56-62; 2:5-10; 2:26-34; 3:12-19; 4:53-61; 5:59-68; 6:49-51</p> <p><u>Extrinsic Evidence</u> The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "application program") Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "application" and "program") 11/7/06 Deposition of Wayne Moore (rough transcript) at 84:13-24 11/8/06 Deposition of Joseph King (rough transcript) at 39:10-43:12; 53:17-54:23; 55:18-57:6; 58:23-59:3; 125:8-126:17</p>	<p><u>Proposed construction</u> A program designed to assist in the performance of a specific end-user task (<i>e.g.</i>, word processing, accounting, or inventory management) in contrast to a program designed to perform management of or maintenance work on the system or system components.</p> <p><u>Intrinsic Evidence:</u> '819 Patent Abstract; Figs. 2, 4-5; columns and lines 1:7-12; 1:14-41; 1:45-2:34; 2:56-60; 3:12-19; 3:21-24; 3:39-41; 3:50-56; 4:39-52; 4:55-61; 5:10-13; 5:24-26; 5:64-68; 6:43-48; 6:49-51; 6:66-67.</p> <p>'819 Prosecution History 9/26/88 Patent Application at 15-18 (REM 0055943-55946). 5/20/89 Office Action at 2 (REM 0055992). 8/30/89 Amendment at 2-4, 6 (REM 0056095-56097, 56099).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>10/13/89 Office Action at 4 (REM 0056108).</p> <p>U.S. Patent No. 4,606,023 (Dragoo) (REM 0055999-56007).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence:</u></p> <p>MICROSOFT COMPUTER DICTIONARY 33 (5th ed. 2002) ("application program").</p> <p>MICROSOFT COMPUTER DICTIONARY 31 (5th ed. 2002) ("application").</p> <p>MICROSOFT COMPUTER DICTIONARY 544 (5th ed. 2002) ("utility").</p> <p>MICROSOFT COMPUTER DICTIONARY 544 (5th ed. 2002) ("utility program").</p> <p>NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 49 (5th ed. 1993).</p> <p>NEWTON'S TELECOM DICTIONARY 40 (1991) ("application").</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs (claim 14)</p>	<p><u>Proposed construction</u></p> <p>Ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>FIG. 5; 4:53-61; 5:10-23; 6:37-39; 6:49-51; claim 15</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p>	<p>WEBOPEDIA, available at http://www.webopedia.com/TERM/a/application.html (last visited Oct. 13, 2006) ("application").</p> <p>11/8/06 Deposition of Joseph King, at 39:10 – 43:12; 53:17 – 54:23; 125:8 – 126:15 (based on rough transcript); at 46:12-17; 133:23-134:8 (based on final transcript).</p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>dividing a period of a clock in said master unit into a number of subframes, dividing each subframe into a number of slots, each corresponding to transmission times for one of said remote units, and assigning a slot to each of said application programs (claim 14)</p>	<p><u>Proposed construction</u></p> <p>Dividing the network clock period into time units (subframes), each of which is used for transmission by a specified remote; and dividing each subframe into smaller time units (time slots), each of which is assigned at initialization to one application via non-packetized messages from the master.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p>	<p><u>Proposed construction</u></p> <p>Dividing the network clock period into time units (subframes), each of which is used for transmission by a specified remote; and dividing each subframe into smaller time units (time slots), each of which is assigned at initialization to one application via non-packetized messages from the master.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>‘819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 3-7 (REM 0055993-55997).</p> <p>8/30/89 Amendment at 2-4, 7-11 (REM 0056095-56097, 56100-56104).</p> <p>10/13/89 Office Action at 3-6 (REM 0056107-56110).</p> <p>2/13/90 Amendment at 2-7 (REM0056173-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence</u></p> <p>11/8/06 Deposition of Joseph King at 54:24 – 55:8; 59:17 – 63:7; 66:22 – 67:19; 117:8 – 119:9 (rough).</p>
<p>time slot assigned to each of said application programs (claim 1)</p>	<p><u>Proposed construction</u></p> <p>A “time slot” is an interval of time during which data from an application program is transmitted; rest of limitation is ordinary meaning</p>	<p><u>Proposed construction</u></p> <p>An interval of time is assigned at initialization to each application program.</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p><u>Intrinsic Evidence</u></p> <p>Abstract; 1:45-2:33; 2:68-3:11; 3:59-65; 4:53-66; 5:14-23; 5:40-56; 6:49-57; 6:66-7:14</p> <p><u>Extrinsic Evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "timeslot")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "time slot")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "time slot")</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p>	<p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-7; columns and lines 1:45-2:34; 2:44-49; 2:60-3:24; 3:59-65; 4:53-5:67; 6:37-39; 6:49-57; 6:66-7:2; 7:11-14; 7:22-25; 7:40-44; 8:18-24.</p> <p>'819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 3-7 (REM 0055993-55997).</p> <p>8/30/89 Amendment at 2-4, 7-11 (REM 0056095-56097, 56100-56104).</p> <p>10/13/89 Office Action at 3-6 (REM 0056107-56110).</p> <p>2/13/90 Amendment at 2-7 (REM0056173-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence</u></p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>reservation request generator (claim 2)</p>	<p><u>Proposed construction</u></p> <p>a device or process that adds to a message a request for additional time slots</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; Figs. 2 & 4, element 54; 1:63-2:1; 2:18-26; 4:3-14; 4:53-61; 5:59-6:24; 6:66-:14</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 133:7-134:21.</p>	<p>11/8/06 Deposition of Joseph King at 54:24 – 55:8, 59:17 – 63:7, 66:22 – 67:19, 117:8 – 119:9 (rough); 64:3-22 (final).</p> <p><u>Proposed construction</u></p> <p>At this time, Comcast does not believe this term requires construction, but provides the following proposed construction in response to Rembrandt's request to construe the term.</p> <p>A device or process that sets reservation bits in a message to request additional time slots.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 8-9; columns and lines 1:45-2:34; 2:18-25; 2:50-51; 2:61-68; 3:7-11; 3:35-37; 3:59-65; 4:6-16; 4:57-61; 4:64-67; 5:57-6:24; 6:11-6:24; 6:57-63; 6:66-7:14.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 912 (6th ed. 1996) ("request message") (sole definition).</p>
<p>reservation request processor</p>	<p><u>Proposed construction</u></p>	<p><u>Proposed construction</u></p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
(claim 2)	<p>a device or process for receiving and processing requests for additional time slots from a reservation request generator</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; Figs. 1 & 3, element 14; 1:63-2:1; 2:18-26; 3:7-11; 4:53-61; 5:59-6:24; 6:66-7:14</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 133:7-134:21.</p>	<p>At this time, Comcast does not believe this term requires construction, but provides the following proposed construction in response to Rembrandt’s request to construe the term.</p> <p>A device or process that can grant a request from a remote unit for more time slots in order for the remote unit to transmit a longer message.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘819 Patent</p> <p>Abstract; Figs. 8-9; columns and lines 1:45-2:34; 2:18-25; 2:50-51; 2:61-68; 3:7-11; 3:35-37; 3:59-65; 4:6-16; 4:57-61; 4:64-67; 5:57-6:24; 6:11-6:24; 6:57-63; 6:66-7:14.</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 912 (6th ed. 1996) (“request message”) (sole definition).</p>
priority bit (claim 11)	<p><u>Proposed construction</u></p> <p>One or more communication bits that are used to convey the relative importance of the communication</p> <p><u>Intrinsic Evidence</u></p>	<p><u>Proposed construction</u></p> <p>A bit that defines the importance of a given remote unit relative to other remote units.</p> <p><u>Intrinsic Evidence:</u></p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit (claim 1)</p>	<p>FIG. 5; 1:63-2:1; 2:18-26; 2:68-3:6; 4:62-5:3; 5:10-23; 5:40-45; 5:59-6:24; 6:52-7:14</p> <p><u>Extrinsic Evidence</u></p> <p>The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "priority")</p> <p>Von Nostrand's Dictionary of Information Technology (3rd Ed.)(1989)(definition of "priority")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "priority")</p>	<p>'819 Patent</p> <p>Abstract; Figs. 5-9; columns and lines 1:45-2:34; 2:66-3:6; 4:62-5:24; 5:39-45; 5:53-6:24; 6:1-10; 6:53-7:14.</p>
<p>master network timing means with a period which is divided into a plurality of subframes, wherein each subframe is divided into said time slots, and each of said time slots is used as an interval in which one of said application programs in said one of said remote units is assigned to transmit (claim 1)</p>	<p><u>Proposed construction</u></p> <p>"master network timing means" is a clock for determining network timing or for delineating time into time slots; rest of limitation is construed according to ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>claim 10; FIGS. 1 & 3, element 12; 2:60-3:6; 5:15-24; 6:32-42; claim 3</p> <p><u>Extrinsic Evidence</u></p> <p>Von Nostrand's Dictionary of Information Technology</p>	<p><u>Proposed construction</u></p> <p>This is a means-plus-function term subject to construction under 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Dividing the period into subframes, and the subframes further into time slots, and assigning a time slot to each application.</p> <p><u>Structure:</u></p> <ul style="list-style-type: none"> • Network Timing Control Processor 12. See '819 Patent.

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>(3rd Ed.)(1989)(definition of "master clock")</p> <p>McGraw-Hill Dictionary of Scientific and Technologic Terms (4th Ed.)(1989) (definition of "master clock")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "master clock")</p> <p>Newton's Telecom Dictionary (7th Ed.)(1991)(definition of "master clock")</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 54:24-67:19; 81:5-81:11; 107:19-119:16; 133:7-134:21</p> <p>Testimony of Dr. V. Thomas Rhynne regarding the meaning of this claim term</p> <p><i>Rembrandt does not believe this limitation is subject to construction under 35 U.S.C. § 112, ¶ 6. Nonetheless, Rembrandt reserves the right to argue that should this limitation be governed by § 112, ¶ 6, it should be construed as follows:</i></p> <p><i>Function: determining master network timing</i></p> <p><i>Structure: FIGS. 1 & 3, element 12; 2:60-3:6; 5:15-24; 6:32-42</i></p>	<p>at Figs. 1, 3; 2:60-3:6; 3:12-24; 5:15-24; 5:29-34.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 5-9; columns and lines 1:45-2:34; 2:44; 2:66-3:24; 3:59-65; 4:53-6:24; 6:37-39; 6:49-7:14; 7:22-25; 7:40-44.</p> <p>8/30/89 Amendment at 2, 8-9 (REM 0056095, 56101-56102).</p> <p>10/13/89 Office Action at 2-4 (REM 0056106-56108).</p> <p>2/13/90 Amendment at 2, 6-7 (REM 0056173, 56177-56178).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p> <p>11/8/06 Deposition of Joseph King at 81:5 – 82:2 (rough); at 126:4-14; 143:6-19 (final).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>ranging means communicating with said master network timing means wherein a transmission time between said master unit and each of said respective remote units is calculated and transmitted from said master unit to each of said respective remote units (claim 1)</p>	<p><u>Proposed construction</u></p> <p>"ranging means" is a device or process that determines a transmission time between the master unit and a remote unit; rest of limitation is construed according to ordinary meaning</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIGS 1 & 3, elements 12, 20, 32; 1:63-2:17; 2:57-3:6; 3:25-29; 3:42-49; 4:62-5:3; 5:24-34; 6:32-36</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhynne regarding the meaning of this claim term</p> <p>11/8/06 Deposition of Joseph King (rough transcript) at 69:5-10</p> <p><i>Rembrandt does not believe this limitation is subject to construction under 35 U.S.C. § 112, ¶ 6. Nonetheless, Rembrandt reserves the right to argue that should this limitation be governed by § 112, ¶ 6, it should be construed as follows:</i></p> <p><i>Function: (performing) ranging</i></p> <p><i>Structure: FIGS 1 & 3, elements 12, 20, 32; 1:63-2:17;</i></p>	<p><u>Proposed construction</u></p> <p>This is a means-plus-function term subject to construction under 35 U.S.C. § 112, ¶ 6.</p> <p><u>Function:</u></p> <p>Calculating and transmitting to each remote the time it takes to transmit between the master and that remote.</p> <p><u>Structure:</u></p> <ul style="list-style-type: none"> • Network Timing and Control Processor 12. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-24; 5:14-33. • Aggregate Rate Multiplexer 16. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-24. • Ranging and Network Initialization Generator 20. <i>See</i> '819 Patent at Figs. 1, 3; 3:12-19. • Time Division Multiplexed Modulator 22. <i>See</i> '819 Patent at Figs. 1, 3; 3:19-24; 3:50-52. • Equalizer 24. <i>See</i> '819 Patent at Figs. 1, 3; 3:30-33; 4:17-18; 4:20-26; 5:34-38. • Automatic gain control 26. <i>See</i> '819 Patent at Figs. 1, 3; 3:33-34; 4:20-31; 5:34-38.

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	2:57-3:6; 3:25-29; 3:42-49; 4:62-5:3; 5:24-34; 6:32-36;	<ul style="list-style-type: none"> Demodulator 28. <i>See</i> '819 Patent at Figs. 1, 3; 3:33-38. Ranging receiver 32. <i>See</i> '819 Patent at Figs. 1, 3; 3:35-38; 3:42-45; 4:20-26. <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Figs. 1, 3, 7; columns and lines 1:45-2:34; 3:12-38; 3:42-45; 3:50-52; 3:65-4:2; 4:17-18; 4:20-31; 5:1-3; 5:14-56; 5:46-52; 6:32-36.</p> <p>'819 Prosecution History</p> <p>9/26/88 Patent Application at 15-18 (REM 0055943-55946).</p> <p>5/20/89 Office Action at 2, 4-5 (REM 0055992, 55994-55995).</p> <p>8/30/98 Amendment at 2, 6, 8-10 (REM 0056095, 56099, 56101-56103).</p> <p>10/13/89 Office Action at 2-4 (REM 0056106-56108).</p> <p>2/13/90 Amendment at 2, 6-7 (REM 0056173, 56177-56178).</p>

'819 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>U.S. Patent No. 4,606,023 (Dragoo) (REM 0055999-56007).</p> <p>U.S. Patent No. 4,644,534 (Sperlich) (REM 0056112-56119).</p> <p>U.S. Patent No. 4,726,017 (Krum) (REM 0055979-55989).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand to be the structures disclosed in the patent specification corresponding to this means-plus-function claim term.</p>
<p>means for calculating clock drifts of the remote units and issuing reset commands to correct the same (claim 12)</p>	<p>Interpreted under 35 U.S.C. § 112, ¶ 6.</p> <p>Function: determining a drift time between the master clock and a remote clock and issuing one or more commands to correct the drift</p> <p>Structure: network timing control processor 12, configured with software to determine a drift time between the master clock and a remote clock, and to issue one or more commands to correct the drift time</p> <p><u>Extrinsic evidence</u></p> <p>Testimony of Dr. V. Thomas Rhyme regarding the structures corresponding to the recited function</p>	<p><u>Proposed construction</u></p> <p>Comcast agrees to adopt Rembrandt's proposed construction.</p> <p><u>Intrinsic Evidence:</u></p> <p>'819 Patent</p> <p>Abstract; Fig. 8; columns and lines 1:45-2:34; 2:61-68; 3:25-29; 5:1-3; 7:15-20.</p> <p>'819 Prosecution History</p>

‘819 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>8/30/98 Amendment at 4, 6 (REM 0056097, 56099).</p> <p><u>Extrinsic Evidence:</u></p> <p>Expert opinion of Dr. Curtis Siller regarding whether one of ordinary skill in the art would understand the patent specification to disclose any structures corresponding to this means-plus-function claim term.</p> <p>11/8/06 Deposition of Joseph King at 81:5 – 82:2 (rough).</p>

United States Patent No. 5,719,858

<p>‘858 Patent Claim Terms</p>	<p>Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence</p>	<p>Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence</p>
<p>time-division multiplexed bus (claims 1, 7, 9, 11, 15, 20)</p>	<p><u>Proposed construction</u> a bus having a bandwidth partitioned into regular time slots, that is shared by two or more sources of data by limiting each source's transmission opportunities to discrete intervals of time</p> <p><u>Intrinsic Evidence</u> FIGS. 3 & 4, element 204; FIGS. 5 & 7; Abstract; 2:42-65; 3:39-61; 4:25-36; 5:43-6:5; 6:36-41; 6:52-64; 11:12-17</p> <p><u>Extrinsic Evidence</u> Dictionary of Computing (4th Ed.)(1996)(definition of “time division multiplexing”) 11/8/06 Deposition of Joseph King (rough transcript) at 49:9-52:11</p>	<p><u>Proposed construction</u> A group of one or more conductors that is shared among several users by allowing each user to use the bus for a given period of time in a defined, repeated sequence.</p> <p><u>Intrinsic Evidence:</u> ‘858 Patent Abstract; Figs. 1-3, 5-7; columns and lines 1:6-12; 1:28-64; 2:15-39; 2:41-3:12; 3:25-27; 3:39-61; 4:25-36; 4:47-51; 4:56-6:5; 6:37-8:45; 9:17-38; 10:43-57; 11:3-37.</p> <p>‘858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-4 (REM 0056522-56524). 8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643). 10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648). U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1115 (6th ed. 1996) ("time division multiplexing (TDM)") (1st definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 117 (6th ed. 1996) ("bus") (3rd definition).</p> <p>NEW IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1377 (5th ed. 1993).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p> <p>Expert opinion of Dr. Curtis Siller regarding what one of ordinary skill in the art would understand this claim term to mean.</p>
<p>portion of the [predefined] bandwidth (claims 1, 7, 9, 11, 15, 20)</p>	<p><u>Proposed construction</u> one or more time slots in a TDM frame assigned to a</p>	<p><u>Proposed construction</u> The part, but less than all, of the data transfer capacity of</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>group of data sources; see below for "predefined bandwidth"</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; 2:49-57; 4:56-62; 5:11-42; 6:15-24; 11:12-17</p>	<p>the bus that is allotted either to packet data or to synchronous data.</p> <p><u>Intrinsic Evidence:</u></p> <p>'858 Patent</p> <p>Abstract; Figs. 1-3, 5-7; columns and lines 1:6-3:12; 3:39-53; 4:37-5:42; 6:6-52; 11:3-37.</p> <p>'858 Prosecution History</p> <p>7/31/95 Patent Application at 15-18 (REM 0056495-56498).</p> <p>4/4/97 Office Action at 2-5 (REM0056522-56525).</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 905 (10th ed. 1993) ("portion") (1st and 3rd definitions).</p>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>MICROSOFT COMPUTER DICTIONARY 50 (5th ed. 2002) (“bandwidth”) (2nd definition).</p> <p>Wayne Moore, “An Approach for Packet Transport in the MAC system” (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, “A Method for Packet Transport in the MAC system” (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>predefined bandwidth (claims 7, 9, 11)</p>	<p><u>Proposed construction</u> a TDM frame with a fixed number of time slots</p> <p><u>Intrinsic Evidence</u> Abstract; 2:49-57; 4:56-62; 5:11-42; 6:15-24; 11:12-17</p>	<p><u>Proposed construction</u> Data transfer capacity fixed in advance of operation.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent Abstract; Figs. 1-3, 5-7; columns and lines 1:6-3:12; 3:39-53; 4:37-5:42; 6:6-52; 11:3-37.</p> <p>‘858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-5 (REM0056522-56525).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 913 (10th ed. 1993) ("pre-") (1st definition).</p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 302 (10th ed. 1993) ("define") (2nd definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 50 (5th ed. 2002) ("bandwidth") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
packet data	<u>Proposed construction</u>	<u>Proposed construction</u>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
(claims 1, 7, 9, 11, 15, 20)	<p>variable bit rate data</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; 1:6-11; 1:17-26; 3:53-56</p> <p><u>Extrinsic Evidence</u></p> <p>Newton’s Telecom Dictionary (7th Ed.)(1994)(definition of “VBR”)</p> <p>Longman Illustrated Dictionary of Computer Science (1987) (definition of “asynchronous”)</p> <p>Acampora at 2:22-32</p> <p>COMREM976690-977133</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 41:19-22</p>	<p>Data that is transmitted in packets.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent</p> <p>Abstract; Figs. 1-3, 5; columns and lines 1:6-11; 1:17-24; 1:28-29; 1:34-39; 2:41-3:12; 3:39-51; 4:4-6; 4:11-17; 4:19-28; 4:39-55; 4:56-5:42; 6:15-24; 6:34-36; 6:44-50; 7:13-20; 9:63-10:2; 10:11-30; 11:3-37; 12:20-29; 12:62-13:1.</p> <p>‘858 Prosecution History</p> <p>7/31/95 Patent Application at 15-18 (REM 0056495-56498).</p> <p>4/4/97 Office Action at 2-4 (REM 0056522-56524).</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643).</p> <p>10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (1st definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (3rd definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (6th definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (7th definition).</p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 740 (6th ed. 1996) ("packet") (10th definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 385 (5th ed. 2002) ("packet") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>synchronous data (claims 7, 9, 11)</p>	<p><u>Proposed construction</u> constant bit rate data</p> <p><u>Intrinsic Evidence</u> Abstract; 1:6-11; 1:17-26; 3:48-51</p> <p><u>Extrinsic Evidence</u> Newton's Telecom Dictionary (7th Ed.)(1994)(definitions of "synchronous", "synchronous data network", "CBR") Dictionary of Computing (4th Ed.)(1996)(definition of "time division multiplexing") The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th Ed.)(1993)(definition of "synchronous") Longman Illustrated Dictionary of Computer Science (1987) (definition of "synchronous") Von Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definitions of "synchronous", "synchronous data network", "synchronous modem", "synchronous time division multiplexing", "synchronous</p>	<p>MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p> <p><u>Proposed construction</u> Constant bit rate data that is not transmitted in packets.</p> <p><u>Intrinsic Evidence:</u> '858 Patent Abstract; Figs. 1-3, 5; columns and lines 1:6-11; 1:17-23; 1:28-29; 1:34-39; 2:41-3:12; 3:39-51; 4:4-6; 4:11-17; 4:19-28; 4:39-55; 4:56-5:42; 6:15-24; 6:34-36; 6:44-50; 7:13-20; 9:63-10:2; 10:11-30; 11:3-37; 12:20-29; 12:62-13:1.</p> <p>'858 Prosecution History 7/31/95 Patent Application at 15-18 (REM 0056495-56498). 4/4/97 Office Action at 2-4 (REM 0056522-56524). 8/1/97 Amendment and Response to Office Action at 2-12 (REM 0056633-56643). 10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648). U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-</p>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>transmission”)</p> <p>Acampora at 2:22-32</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 41:14-18; 77:23-78:24</p>	<p>56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS 1075 (6th ed. 1996) (“synchronous”) (1st definition).</p> <p>MICROSOFT COMPUTER DICTIONARY 38 (5th ed. 2002) (“asynchronous”) (sole definition).</p> <p>Wayne Moore, “An Approach for Packet Transport in the MAC system” (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, “A Method for Packet Transport in the MAC system” (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>distributed packet manager (claims 1, 7)</p>	<p><u>Proposed construction</u></p> <p>a device, process or algorithm that is located within each packet data source, that controls how the packet data source accesses a portion of the bandwidth assigned to packet data</p> <p><u>Intrinsic Evidence</u></p>	<p><u>Proposed construction</u></p> <p>A decentralized mechanism that performs all the functions required to aggregate and synchronize packet data to the time-division multiplexed bus and to prevent packet collisions.</p> <p><u>Intrinsic Evidence:</u></p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
	<p>Abstract; FIG. 3, elements 216-n; FIG. 4, PACKET MANAGER; FIG. 6; FIG. 8; 2:53-3:12, 3:51-4:36; 4:56-5:10; 6:6-15; 6:41-10:42</p> <p><u>Extrinsic Evidence</u></p> <p>Von Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definition of "distributed function")</p> <p>Dictionary of Computer and Internet Terms (5th Ed.)(1996)(definition of "distributed")</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of "distributed function")</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 177:11-178:20</p>	<p>'858 Patent</p> <p>Abstract; Figs. 1-4, 8A-8C; columns and lines 1:6-3:12; 3:23-24; 3:34-36; 3:51-4:36; 4:56-5:10; 6:6-10:43.</p> <p>'858 Prosecution History</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM0056633-56643).</p> <p>10/1/97 Examiner's Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
allocate access to the allotted bandwidth among	<u>Proposed construction</u>	<u>Proposed construction</u>

‘858 Patent Claim Terms	Plaintiff Rembrandt’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast’s Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
<p>said packet data sources (claim 1)</p> <p>allocate access to the second portion of the predefined bandwidth among said packet data sources (claim 7)</p> <p>controlling [the] access by said packet data sources to the allocated portion of the bandwidth (claims 15, 20)</p>	<p>Controlling access by each of the packet data sources to the portion of bandwidth previously assigned to packet data</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIGS. 6 & 8, 2:49-57; 2:66-3:3; 4:56-5:5; 6:6-14; 6:41-10:42</p> <p><u>Extrinsic Evidence</u></p> <p>Van Nostrand Reinhold Dictionary of Information Technology (3rd Ed.)(1989)(definition of “allocate”)</p> <p>The Computer Glossary (6th Ed.)(1993)(definition of “allocate”)</p> <p>Longman Illustrated Dictionary of Computer Science (1987) (definition of “allocate”)</p> <p>11/7/06 Deposition of Wayne Moore (rough transcript) at 177:11-178:20</p>	<p>Apportion to each of the packet data sources sole permission to attempt to transmit in the portion of bandwidth previously assigned to packet data.</p> <p><u>Intrinsic Evidence:</u></p> <p>‘858 Patent</p> <p>Abstract; Figs. 1-4, 8A-8C; columns and lines 1:6-3:12; 3:23-24; 3:34-36; 3:51-4:36; 4:56-5:10; 5:11-20; 5:30-32; 6:6-10:43.</p> <p>‘858 Prosecution History</p> <p>8/1/97 Amendment and Response to Office Action at 2-12 (REM0056633-56643).</p> <p>10/1/97 Examiner’s Statement of Reasons for Allowance at 1 (REM 0056648).</p> <p>U.S. Patent No. 4,763,321 (Calvignac) (REM 0056529-56551).</p> <p>U.S. Patent No. 5,463,624 (Hogg) (REM 0056585-56612).</p> <p><u>Extrinsic Evidence:</u></p> <p>MERRIAM WEBSTER’S COLLEGIATE DICTIONARY 30 (10th ed. 1993) (“allocate”) (1st definition).</p>

'858 Patent Claim Terms	Plaintiff Rembrandt's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence	Defendant Comcast's Proposed Construction and Identification of Intrinsic and Extrinsic Evidence
		<p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 6 (10th ed. 1993) ("access") (2nd definition).</p> <p>MERRIAM WEBSTER'S COLLEGIATE DICTIONARY 252 (10th ed. 1993) ("control") (2nd definition).</p> <p>Wayne Moore, "An Approach for Packet Transport in the MAC system" (3/15/94) (memorandum) (REM 0085208-85209).</p> <p>Wayne Moore, "A Method for Packet Transport in the MAC system" (4/8/94) (memorandum) (REM 0085210-85213).</p>
<p>network access manager (claim 8)</p> <p>network access module (claim 26)</p>	<p><u>Proposed construction</u></p> <p>a device, process or algorithm for controlling the assignment of synchronous and/or packet data portions on a TDM bus, and for passing data between the bus and a network</p> <p><u>Intrinsic Evidence</u></p> <p>Abstract; FIG. 3, element 205; 1:12-26; 2:49-65; 3:39-48; 4:62-5:2; 5:11-20; 9:22-30;</p>	<p><u>Proposed construction</u></p> <p>At this time Comcast does not believe this term needs to be construed, but reserves its right to argue its ordinary meaning and to counter Rembrandt's proposed construction.</p>

SEALED

DOCUMENT

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP
Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP
Defendants.

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Civil Action No. 2-05CV-443
Judge T. John Ward

Jury Demand

**UNOPPOSED MOTION FOR LEAVE TO SUBMIT SUPPLEMENTAL AUTHORITY IN
SUPPORT OF CLAIM CONSTRUCTION ARGUMENT**

Defendants Comcast Corporation; Comcast Cable Communications; LLC; and Comcast of Plano, LP, (“Comcast”) respectfully move to submit supplemental authority in support of its claim construction argument and brief, and would show the Court as follows:

1. On January 12, 2007, Comcast filed its Responsive Claim Construction Brief (dkt. no. 125), setting forth its constructions of the material claim terms in the patents involved in this litigation. Since that time, Comcast has uncovered additional, recent authority in support of its construction of the term “application program” contained in the ‘819 patent.

2. Comcast moves to submit this additional authority, attached hereto as Exhibit A, in support of its construction of “application program.” *See* Exhibit A, p.9.

3. Rembrandt is unopposed to this motion.

FOR ALL THESE REASONS, Defendant Comcast respectfully moves to submit supplemental authority, attached hereto as Exhibit A, in support of its claim construction brief and argument.

Respectfully submitted,

/s/ Jennifer Haltom Doan

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**ATTORNEYS FOR DEFENDANTS
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COMCAST CABLE
COMMUNICATIONS, LLC, and
COMCAST OF PLANO, LP**

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this 31st day of January, 2007.

/s/ Jennifer Haltom Doan

Jennifer Haltom Doan

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

SEVEN NETWORKS INC. §
Vs. § CIVIL ACTION NO. 2:05-CV-365
VISTO CORPORATION §

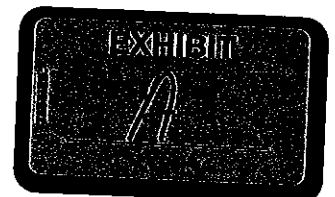
MEMORANDUM OPINION AND ORDER

1. Introduction

Seven Networks, Inc. ("Seven") asserts various claims of two United States patents in this case. The patents-in-suit are U.S. Patent No. 5,857,201 ("the '201 patent") and U.S. Patent No. 6,324,542 B1 ("the '542 patent"). The '542 patent is a continuation of the '201 patent. This opinion resolves the parties' various claim construction disputes. The court will address briefly the technology at issue in the case, then turn to the merits of the claim construction issues.

2. Background of the Technology

The patents are directed toward client/server technology. More specifically, the inventions relate to "a client/server architecture for occasional connections between mobile computing devices and enterprise computing systems." '542 patent, col. 1, ll. 11-14. In the Background of the Invention portion of the patents, the inventors explain that in the current "persistent" connection client/server model, personal computer clients connect to a server on the network and request data on an as needed basis for a particular application. '542 patent, col. 1, ll. 16-18. The connection is described as "persistent" because it continues for the entire amount of time the application is in use.



Id., ll. 20-22. Persistent connections are not possible, however, with mobile devices. Of necessity, these devices connect on an occasional basis. When they do connect, the connection needs to move the smallest amount of data in the least amount of time. This is because wireless transports are not capable of moving large amounts of data quickly, and data is very expensive to move. *Id.*, ll. 22-30.

The patents describe an architecture for use with “non-persistently” connected devices. In the ‘542 patent, a server computer “non-persistently” connects to a portable client device. ‘542 patent, col. 2, ll. 49-55. During the non-persistent connection, data may be updated on both the client device and the server computer, and the client device may perform a limited amount of interaction with the server. *Id.*, ll. 56-67. The claims of the ‘201 patent are somewhat similar, but they require a “gateway computer” that is persistently connected to data storage, and non-persistently connected to the client device. *See, e.g.*, ‘201 patent, claim 1.

The original owner of the patents was Wright Strategies, Inc. In the Abstract and in the Detailed Description of the Preferred Embodiment, the inventors describe a particular embodiment of the invention known as FormLogic, a trade name for products originally sold by Wright Strategies. Although neither the claim language nor the Summary of the Invention expressly limit the claims to the FormLogic embodiment, Visto contends that the court should construe the claims narrowly and restrict their scope to the FormLogic architecture.

3. Discussion

A. General Principles Governing Claim Construction

“A claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using or selling the protected invention.” *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999). Claim construction is an issue

of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

To ascertain the meaning of claims, the court looks to three primary sources: the claims, the specification, and the prosecution history. *Markman*, 52 F.3d at 979. Under the patent law, the specification must contain a written description of the invention that enables one of ordinary skill in the art to make and use the invention. A patent's claims must be read in view of the specification, of which they are a part. *Id.* For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. *Id.* "One purpose for examining the specification is to determine if the patentee has limited the scope of the claims." *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000).

Nonetheless, it is the function of the claims, not the specification, to set forth the limits of the patentee's claims. Otherwise, there would be no need for claims. *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The patentee is free to be his own lexicographer, but any special definition given to a word must be clearly set forth in the specification. *Intellicall, Inc. v. Phonometrics*, 952 F.2d 1384, 1388 (Fed. Cir. 1992). And, although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiments. *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

This court's claim construction decision must be informed by the Federal Circuit's decision in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005)(en banc). In *Phillips*, the court set forth several guideposts that courts should follow when construing claims. In particular, the court

reiterated that “the *claims* of a patent define the invention to which the patentee is entitled the right to exclude.” *Id.* at 1312 (emphasis added)(quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To that end, the words used in a claim are generally given their ordinary and customary meaning. *Id.* The ordinary and customary meaning of a claim term “is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e. as of the effective filing date of the patent application.” *Id.* at 1313. This principle of patent law flows naturally from the recognition that inventors are usually persons who are skilled in the field of the invention. The patent is addressed to and intended to be read by others skilled in the particular art. *Id.*

The primacy of claim terms notwithstanding, *Phillips* made clear that “the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* Although the claims themselves may provide guidance as to the meaning of particular terms, those terms are part of “a fully integrated written instrument.” *Id.* at 1315 (quoting *Markman*, 52 F.3d at 978). Thus, the *Phillips* court emphasized the specification as being the primary basis for construing the claims. *Id.* at 1314-17. As the Supreme Court stated long ago, “in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims.” *Bates v. Coe*, 98 U.S. 31, 38 (1878). In addressing the role of the specification, the *Phillips* court quoted with approval its earlier observations from *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998):

Ultimately, the interpretation to be given a term can only be determined and

confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

Consequently, *Phillips* emphasized the important role the specification plays in the claim construction process.

The prosecution history also continues to play an important role in claim interpretation. The prosecution history helps to demonstrate how the inventor and the PTO understood the patent. *Phillips*, 415 F.3d at 1317. Because the file history, however, “represents an ongoing negotiation between the PTO and the applicant,” it may lack the clarity of the specification and thus be less useful in claim construction proceedings. *Id.* Nevertheless, the prosecution history is intrinsic evidence. That evidence is relevant to the determination of how the inventor understood the invention and whether the inventor limited the invention during prosecution by narrowing the scope of the claims.

Phillips rejected any claim construction approach that sacrificed the intrinsic record in favor of extrinsic evidence, such as dictionary definitions or expert testimony. The *en banc* court condemned the suggestion made by *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002), that a court should discern the ordinary meaning of the claim terms (through dictionaries or otherwise) before resorting to the specification for certain limited purposes. *Id.* at 1319-24. The approach suggested by *Tex. Digital*—the assignment of a limited role to the specification—was rejected as inconsistent with decisions holding the specification to be the best guide to the meaning of a disputed term. *Id.* at 1320-21. According to *Phillips*, reliance on dictionary definitions at the expense of the specification had the effect of “focus[ing] the inquiry on the abstract meaning of

words rather than on the meaning of the claim terms within the context of the patent.” *Id.* at 1321. *Phillips* emphasized that the patent system is based on the proposition that the claims cover only the invented subject matter. *Id.* What is described in the claims flows from the statutory requirement imposed on the patentee to describe and particularly claim what he or she has invented. *Id.* The definitions found in dictionaries, however, often flow from the editors’ objective of assembling all of the possible definitions for a word. *Id.* at 1321-22.

Phillips does not preclude all uses of dictionaries in claim construction proceedings. Instead, the court assigned dictionaries a role subordinate to the intrinsic record. In doing so, the court emphasized that claim construction issues are not resolved by any magic formula. The court did not impose any particular sequence of steps for a court to follow when it considers disputed claim language. *Id.* at 1323-25. Rather, *Phillips* held that a court must attach the appropriate weight to the intrinsic sources offered in support of a proposed claim construction, bearing in mind the general rule that the claims measure the scope of the patent grant.

B. Sole Embodiment Limitation

In support of its effort to restrict the scope of the claims to the FormLogic system, Visto points to a line of Federal Circuit decisions exemplified by *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337 (Fed. Cir. 2001). In *SciMed*, the Federal Circuit considered a patent related to catheters. The issue in the case was whether the specification of the patents limited the scope of the asserted claims to catheters with coaxial lumens—the preferred embodiment. The court stated that “[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered

broad enough to encompass the feature in question.” *Id.* at 1341. The court carefully reviewed the specification and observed that the patent repeatedly characterized “the invention” in terms of the coaxial lumen structure. *Id.* at 1343 (recounting statements in the Summary of the Invention and Conclusion sections of the patents). According to the court, the “most compelling portion of the specification” included a statement that “[t]he intermediate sleeve structure defined above *is the basic sleeve structure for all embodiments of the present invention contemplated and disclosed herein . . .*” *Id.* Based on the specification, read as a whole, the court limited the scope of the claims to the sole embodiment disclosed by the patents.

This case is distinguishable from *SciMed* and the other authorities cited by Visto. In *Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1326 (Fed. Cir. 2002), the defendant argued that where only one embodiment was disclosed in the specification, the claim terms should be limited to the embodiment disclosed. Rejecting this position, the court stated “our precedent establishes no such rule.” *Id.* at 1326. Instead, the court repeated its prior remarks:

Although precedent offers assorted quotations in support of differing conclusions concerning the scope of the specification, these cases must be viewed in the factual context in which they arose. Whether an invention is fairly claimed more broadly than the “preferred embodiment” in the specification is a question specific to the content of the specification, the context in which the embodiment is described, the prosecution history, and if appropriate the prior art . . .

Teleflex, 299 F.3d at 1327 (quoting *Wang Laboratories v. America Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999)).

In the present case, the claims are not limited to the embodiment described in the specification. Unlike *SciMed*, there are no statements in the specification that expressly state that the invention is limited to the FormLogic architecture. The closest statement is found in column 5

of the patent:

Referring to Fig. 2, *a client/server system 130 of the present invention will be described. The client/server system 130 hereinafter may also be referred to as the FormLogic client/server system.*

‘542 patent, col. 5, ll. 27-30 (emphasis added). The statement, however, merely reflects that “a client/server system 130 of the present invention is described.” (emphasis added). Use of the indefinite article “a” suggests that the patentee did not intend to limit the scope of the claims to the FormLogic system. This statement, when read in light of the claim language and the rest of the specification, falls short of what is required to limit the claims to the preferred embodiment, even in cases where the patent discloses only a single embodiment.

Visto also suggests that the Abstract provides additional support. The Abstract, which provides a short description of the patented technology, refers to “[a] FormLogic (FL) client/server system and method,” the “FL builder program,” the “FL server” and the “FL engine.” ‘542 patent, Abstract. *SciMed* considered statements in the Abstract to be relevant to the question of claim scope—in conjunction with the rest of the specification. *SciMed*, 242 F.3d at 1342. The Abstract in the patents-in-suit, however, describe an FL client/server system, but do not restrict “the invention” or the scope of any specific claim term to features of that embodiment. Read in conjunction with the balance of the patent, the language of the Abstract does not limit the claims to the disclosed embodiment. Accordingly, the court rejects Visto’s efforts to limit the claim language to the FormLogic system described as the preferred embodiment. The court now addresses the terms in dispute.

C. Terms in Dispute

1. Application program

The term “application program” appears in claim 8 of the ‘201 patent. Seven argues that this term simply means “software.” Visto proposes that the term means “a hardware independent program on the client created using the FormLogic Builder for performing tasks such as allowing remote database or email access.” Seven’s proposed definition is too broad. Not all software constitutes an application program. At the same time, Visto’s proposal is too narrow, given that it is limited to the preferred embodiment. The court defines “application program” as “software that performs tasks for an end user.”

2. Client database

The term “client database” appears in several of the claims of the patents-in-suit. Seven proposes that this term means “a collection of data stored electronically on a device.” Visto seeks to construe the term to mean “a full local database on the portable client that serves as a temporary representation of a host database.” Given Seven’s concession at the hearing that the client database must be located physically on the client device, the court construes the term to mean “a collection of data stored electronically on the client device.”

3. Communications module

The term “communications module” appears in both the ‘201 patent and in the ‘542 patent. Seven defines this term to mean “software on the client for communicating.” Visto proposes that the term means “a software module on the client that interfaces with the gateway computer/server computer. The communications module is based on an OLE connection technology. The communications module must be on a separate device from the session module.”

Visto's definition is replete with limitations that are not found in the claims. The cited portions of the specification related to OLE connection technology demonstrate that OLE technology is clearly illustrative and not exclusive. *See, e.g.*, '542 patent, col. 3, ll. 58-60 ("The new FormLogic client/server components described herein use an object management scheme and are *preferably* based on Microsoft's OLE technology.")(emphasis added). The court construes the term "communications module" as "software routines on the client for communicating."

4. Data storage

The court construes this term to mean "a device that holds data."

5. Directly manipulate

Several of the disputed terms relate to the manipulation of data on the client. The term "directly manipulate" appears in the '542 patent. Seven argues that the term means "causing tasks to occur, such as querying, adding, or removing data, by commands sent to the client." Visto argues that the term means "to control without any intervening agency or step."

The specification provides guidance. The patent refers to "Remote Database APIs" and states:

These calls are used to directly manipulate the client database during a connection. When invoking Remote Database APIs from services, corresponding events will be passed back to the services that generated the call.

'542 patent, col. 8, ll. 59-62.

Seven points to this passage, as well as other portions of the specification, to argue that the proper construction of "directly manipulate" is the use of software calls or commands to perform certain actions on the client database. The court agrees with this view and holds that Visto's proposed definition does not account for the meaning of the term read in light of the specification.

Accordingly, the court defines the term “directly manipulate” to mean “causing tasks to occur, such as querying, adding, or removing data, by commands sent to the client.”

6. Directly manipulate the associated client database

For similar reasons as those expressed with respect to the previous term, the court construes “directly manipulate the associated client database” to mean “causing tasks to occur on a client database, such as querying, adding, or removing data from that client database, by commands sent to the client.”

7. Gateway computer

This term is used in the ‘201 patent. Seven proposes that the term means “an intermediate computer.” Pointing to the preferred embodiment, Visto contends that the term means “a FormLogic Server located between the client and a network having the data storage.” The specification and the prosecution history refer to the gateway computer as an intermediate server between the client and the original server. The court therefore construes the term “gateway computer” to mean “an intermediate server between the client and the original server.”

8. Manipulating the client database by commands received from the gateway computer

This term appears in claim 11 of the ‘201 patent. Seven asks the court to incorporate its construction of “directly manipulating” into this phrase, the terms of which would require the commands to be received from the gateway computer. Visto proposes that the term means “the session module on the gateway computer directly manipulates the client database through the use of Remote Database APIs.” Visto’s proposed construction incorporates limitations not found in the claims. It is therefore rejected. The only phrase that needs construction is “manipulating the client

database by commands,” and the court incorporates by reference its previous construction of “directly manipulating the client database” as the definition for that term.

9. Manipulating the client database with the session module

This limitation appears in claim 28 of the ‘542 patent. The court concludes that “manipulating the client database” means “causing tasks to occur on the client database, such as querying, adding, or removing data, by commands sent to the client database.” The balance of the phrase requires no construction. The court rejects Visto’s proposed construction because it requires the use of Remote APIs and the retrieval from, and insertion of data into, the client database. The patents use the term “manipulation” more broadly than Visto proposes. In particular, manipulation is not limited to retrieving and inserting data into the client database. Moreover, requiring the use of Remote APIs would unnecessarily limit the scope of the claims to the preferred embodiment.

10. Network that is further connected to the gateway computer

This term is used in the ‘201 patent. The court rejects both parties’ proposed constructions. The court defines “network” to mean “a plurality of computers that are interconnected so they can exchange information.” The balance of the phrase needs no construction.

11. Non-persistent connection

Seven argues that the term means “a connection that is not full time.” Visto argues that the term means “an occasional and intentionally short task oriented session defined by a connection to a remote host, the performance of a specific task or set of tasks, and then a disconnection. This is very different from a persistent connection where the intent is for the connection to persist while an application is being used.” The court rejects both parties’ definitions. As used in the patents, a non-persistent connection means “an occasional connection that does not exist for the entire time an

application is used.” ‘542 patent, col. 1, ll. 24-25; col. 7, ll. 20-25.

12. Persistent connection

Seven contends that this term means “a full-time connection.” Visto argues that the term means “a connection that continues for the entire time an application is in use.” Viewed in the context of the specification, Visto’s construction is closer to correct. The court construes the term to mean “a connection that exists the entire time the application is used.” ‘542 patent, col. 7, ll. 25-28 (describing non-persistent connection and stating that “[t]his is very different from a persistent connection based client/server model where the connection exists the entire time an application is used, and data is only retrieved when the user request it.”).

13. Session module

Seven contends that the term “session module” simply means “software on the server.” Visto suggests that the term means “a software module on the gateway computer/server computer that controls the tasks for a communication session. The session module may not reside on the client.” As the proposals reflect, the parties agree that the session module must reside on the server computer. They disagree, however, on the functionality of the module and, in particular, that the module must “control” the tasks for a communication session.

The specification describes one aspect of the invention as “a server computer, comprising a server data source, a session module, in communication with the server data source, to non-persistently connect to the communications module and access the client database from time to time.” ‘542 patent, col. 2, ll. 52-55. One limitation of claim 1 of the ‘542 patent reads similarly, requiring “a session module, in communication with the data storage, to non-persistently connect to the communications module and directly manipulate the client database during the connection from

time to time.” ‘542 patent, claim 1. From these passages, it does not appear that the claims require the session module to “control the tasks for a communication session.” Instead, the claim language describes the functionality required by the routines. *Compare* ‘542 patent, claim 1 (“a session module . . . to non-persistently connect . . . and directly manipulate”) *with* claim 22 (“plurality of session modules executing on the server computer, each session module in data communication with the other session modules, wherein one of the plurality of session modules non-persistently connects to at least one of the plurality of portable client devices.”). The court accordingly construes the term “session module” as “a group of software routines located on the server.” The balance of the claim language defines the functionality required by the module.

14. Server computer

This term is used throughout the ‘542 patent claims. Seven contends that the term means “a machine on a network that provides a particular service to other machines.” Visto argues that the term means “the FormLogic Server responsible for directly manipulating the client database, including retrieving data and inserting new data.” Visto’s construction would limit the claims to the preferred embodiment and is rejected. The court construes the term “server computer” to mean “a machine on a network that provides a particular service to other machines.”

15. Synchronization

The parties dispute what is meant by the term “synchronization.” Seven’s proposed construction is “updating the client and server databases to reflect changes that have happened since the last connection.” Visto’s construction is “merging data from the client database with the data from the data store.” In the context of these claims, “synchronization” means “updating the client and server databases to reflect changes that have happened since the last connection.”

16. Allowing access to the client database

The court agrees with Seven that this term, as used in the '201 patent, needs no construction.

17. Local area network

Again, Seven argues that this term needs no construction. Visto urges that it means "a network that connects several computers that are located nearby to one another, allowing them to share devices and files." Although Seven does not dispute that a LAN requires several computers to be located in close proximity, Seven disputes that the computers on the LAN must necessarily share devices and files. The court has previously construed the term "network" to mean a plurality of computers that are interconnected so they can exchange information. A "local area network" is therefore defined as "a plurality of computers located nearby to one another that are interconnected so they can exchange information."

18. Local area network that is further connected to the server

This term needs no construction.

19. Query/Querying

The court defines "query" to mean "a request for information."

20. Data communication with one or more of the plurality of data storages that may be different than the one or more of the plurality of data storages in communication with the other session modules

The court concludes that this phrase requires no additional construction other than those previously provided for "data storage" and "session module."

4. Conclusion

The court adopts the above definitions for those terms in need of construction. The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions

in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the court.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP
Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP
Defendants.

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Civil Action No. 2-05CV-443
Judge T. John Ward

Jury Demand

ORDER

Defendants Comcast Corporation; Comcast Cable Communications; LLC; and Comcast of Plano, LP, filed an Unopposed Motion for Leave to Submit Supplemental Authority in Support of its Claim Construction Brief. The Court, having reviewed the motion, and being well-advised, finds that the motion should be **GRANTED**.

It is therefore **ORDERED, ADJUDGED and DECREED** that Exhibit A to Defendants' Motion for Leave to Submit Supplemental Authority in Support of its Claim Construction Brief shall be supplemented and included in Defendants' claim construction brief and argument.

SO ORDERED.


MARSHALL DIVISION

COMCAST CORP., ET AL. §

ORDER

The court has determined that it will grant Time Warner's motion to disqualify Fish & Richardson. A memorandum opinion and order will follow at the court's earliest convenience. At Rembrandt's election, the court will continue the claim construction hearing set for February 8, 2007. Rembrandt shall notify the court by close of business February 5, 2007, whether it desires to proceed with the claim construction hearing as currently scheduled with other counsel.

SIGNED this 1st day of February, 2007.


T. JOHN WARD
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

v.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Defendants.

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Civil Action No. 2-05CV-443

Judge T. John Ward

Jury Demand

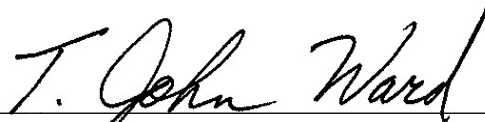
ORDER

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It is therefore **ORDERED, ADJUDGED and DECREED** that Exhibit A to Defendants' Motion for Leave to Submit Supplemental Authority in Support of its Claim Construction Brief shall be supplemented and included in Defendants' claim construction brief and argument.

SO ORDERED.

SIGNED this 1st day of February, 2007.



T. JOHN WARD

UNITED STATES DISTRICT JUDGE

UNITED STATES DISTRICT COURT

EASTERN

DISTRICT OF

TEXAS

REMBRANDT TECHNOLOGIES, LP
V.
COMCAST CORPORATION, ET AL.

NOTICE

CASE NUMBER: 2:05-CV-443(TJW)

TYPE OF CASE:

☒ CIVIL☐ CRIMINAL

TAKE NOTICE that a proceeding in this case has been set for the place, date, and time set forth below:

PLACE

ROOM NO.

DATE AND TIME

TYPE OF PROCEEDING

Please NOTE that the Markman Hearing scheduled for February 8, 2007 has been CANCELLED. The hearing will be reset at a later date.

TAKE NOTICE that a proceeding in this case has been continued as indicated below:

PLACE

DATE AND TIME PREVIOUSLY
SCHEDULEDCONTINUED TO DATE
AND TIME

David J. Maland

US MAGISTRATE JUDGE OR CLERK OF COURT

February 5, 2007

DATE

Sonja H. Dupree

(BY) DEPUTY CLERK

TO: ALL COUNSEL OF RECORD

ACKNOWLEDGMENT

NOTICE TO COUNSEL: Please sign in the space provided below and return to the court by facsimile, (903) 935-2295, within three (3) days of your receipt of the enclosed notice.

I acknowledge receipt of the indicated notice on the date shown below.

Case No. _____

Signature of Atty. _____ Date _____

Print Name of Atty. _____

Counsel for _____
(Name of Party)

Type of Proceeding: _____
(e.g., Scheduling Conference)

Date of Proceeding: _____

Time of Proceeding: _____

Location of Proceeding: _____

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

V.

COMCAST CORPORATION; COMCAST
CABLE COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP

Defendants.

Civil Action No. 2-05CV-443

Judge T. John Ward

Jury Demand

**JOINT MOTION TO SUSPEND ALL DEADLINES PENDING APPOINTMENT OF
NEW COUNSEL FOR PLAINTIFF**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”) and Defendants Comcast Corporation; Comcast Cable Communications, LLC; and Comcast of Plano, LP, (“Comcast”) respectfully move to suspend all deadlines pending the appointment and appearance of new Plaintiff’s counsel, and would show the Court as follows:

1. On February 1, 2007, the Court granted the motion to disqualify Fish & Richardson as counsel for Rembrandt. (Dkt. no. 140).
2. Rembrandt and Comcast move to suspend all deadlines, including those contained in the Docket Control Order (Dkt. no. 52), all briefing schedules (*see* Rembrandt's Sealed Patent Motion, Dkt. no. 137-38), and all discovery or deposition deadlines pending the appointment and appearance of new counsel for Rembrandt.
3. The parties propose to revisit deadlines, briefing schedules and deposition dates as soon as new counsel has been appointed and has made an appearance, and submit their proposal(s) to the Court regarding appropriate deadlines.

FOR ALL THESE REASONS, Plaintiff Rembrandt and Defendant Comcast respectfully move to suspend all deadlines pending appointment of new Plaintiff's counsel.

Respectfully submitted,

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**ATTORNEYS FOR DEFENDANTS
COMCAST CORPORATION,
COMCAST CABLE
COMMUNICATIONS, LLC, and
COMCAST OF PLANO, LP**

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). All other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by certified mail, return receipt requested, on this 5th day of February, 2007.

/s/ Andrew W. Spangler
Andrew W. Spangler

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
Vs.	§	CIVIL ACTION NO. 2:05CV443
COMCAST CORP., ET AL.	§	

MEMORANDUM OPINION AND ORDER

1. Introduction.

This case requires application of professional responsibility standards to attorneys who prosecute patent infringement cases for one client while concurrently representing, on other matters, a potential infringer. The court is persuaded that disqualification is required in the circumstances of this case.

2. Facts and Procedural Posture.

Rembrandt Technologies, LP (“Rembrandt”) has filed three separate lawsuits in this court alleging infringement of the same patents by various cable companies. In this case, filed on September 15, 2005, Fish & Richardson (“F&R”) represents Rembrandt.

On behalf of Rembrandt, F&R has urged the court to adopt various claim construction positions as the law of the case. F&R also advocates that Comcast infringes the patents-in-suit because it adheres to two *industry* standards: the ATSC standard for United States Patent No. 5,43,627 (“the ‘627 patent”) and DOCSIS for United States Patent Nos. 5,852,631, 4,937,819, and 5,719,858 (“the ‘631, ‘819, and ‘858 patents”). Rembrandt references the ATSC and DOCSIS

standards at length in its infringement contentions.

After F&R filed this case on behalf of Rembrandt, the law firm accepted representation of Time Warner Cable Inc. (“Time Warner”) in a case filed in this district styled *Digital Packet Licensing Inc. v. Time Warner Cable*, No. 2:05CV451, pending before the Hon. Leonard Davis. In its effort to secure Time Warner’s business, on September 29, 2005, F&R made a “pitch” to Time Warner using a slide presentation. The presentation detailed F&R’s experience handling cases in this district. F&R omitted this case from its pitch materials, despite the fact that it had filed this case on behalf of Rembrandt only thirteen days before the presentation to Time Warner. Ultimately, Time Warner hired F&R to represent it in the *Digital Packet* case.

In the *Digital Packet* case, the plaintiff accused Time Warner of infringing a patent titled “Multiplexed Digital Packet Telephone System.” During that litigation, Time Warner provided F&R with confidential information about Time Warner’s legal strategy and Time Warner’s systems and technology. This included information about claim construction, non-infringement positions, and other legal issues in the *Digital Packet* case. Time Warner’s engineers also provided F&R with information about Time Warner’s voice and data networks. In April 2006, Time Warner and the plaintiffs in the *Digital Packet* case reached a settlement. F&R continued to represent Time Warner for several weeks after the conclusion of the settlement.

On June 1, 2006, Rembrandt filed two more cases in this district alleging infringement of the same patents that are asserted in this case. In one of these cases, Rembrandt sued Time Warner. It sued Charter Communications in the second case. Originally, F&R represented Rembrandt in the Charter case but not in the Time Warner suit.

Time Warner questioned the propriety of F&R’s representation of Rembrandt in both the

present case and in the *Charter* case. F&R withdrew from the *Charter* case but not this case. Time Warner moved to intervene for the limited purpose of filing a motion to disqualify F&R. The court allowed the intervention and now addresses the motion to disqualify.

3. Legal Principles.

Motions to disqualify counsel in Texas federal courts implicate federal law. *In re Dresser Indus., Inc.*, 972 F.2d 540, 543 (5th Cir. 1992). This court is not limited to the state's ethical rules but may also consider national norms of professional conduct, including the ABA Model Rules and the Model Code. *In re American Airlines, Inc.*, 972 F.2d 605, 610 (5th Cir. 1992). Accordingly, for guidance on the applicable standard, the court will consider the Texas Rules of Professional Conduct as well as the provisions of the ABA Model Rule cited by the parties.

Texas Rule 1.06 provides:

except to the extent permitted by paragraph (c), a lawyer shall not represent a person if the representation of that person: (1) involves a substantially related matter in which that person's interests are materially and directly adverse to the interest of another client of the lawyer or the lawyer's firm; or (2) reasonably appears to be or become adversely limited by the lawyer's or law firm's responsibilities to another client or to a third person or by the lawyer's or law firm's own interests.

Texas Rule 1.06 permits such representations only when the lawyer reasonably believes the representation of each client will not be materially affected and each affected client consents to such representation after full disclosure. Tex. R. Prof. Conduct 1.06(c).

ABA Model Rule 1.7 provides:

- (a) Except as provided in paragraph (b), a lawyer shall not represent a client if the representation involves a concurrent conflict of interest.

A concurrent conflict of interest exists if:

- (1) *the representation of one client will be directly adverse to another client; or*

- (2) there is a significant risk that the representation of one or more clients will be materially limited by the lawyer's responsibilities to another client, a former client or a third person or by a personal interest of the lawyer.

ABA Model Rule 1.7(a)(emphasis added). Model Rule 1.7(b) permits concurrent conflicts of interest under certain circumstances with the client's consent. ABA Model Rule 1.7(b).

Both rules require a showing of direct adversity in the context of concurrent representations. The text of the Texas Rule, however, also requires that the two matters be "substantially related." The Fifth Circuit, faced with a conflict between the ABA Model Rules and Code and the Texas Rules, opted to apply the stricter national standards. *In re Dresser*, 972 F.2d 540 (5th Cir. 1992). *Dresser* involved a situation in which a lawyer filed a suit against a current client. The court emphasized that the motion to disqualify was governed by the ethical rules announced by the national profession in light of the public interest and the litigants' rights. *Id.* at 543. Thus, in *Dresser*, the court turned "to the current national standards of legal ethics to first consider whether this dual representation amounts to impropriety." *Id.* at 544. One of the standards considered by the Fifth Circuit in its rejection of the Texas rule was a former version of ABA Model Rule 1.7. *Id.* at 544 n. 7. In light of the Fifth Circuit's analysis in *Dresser* and its reliance on the provisions of the ABA Model Rules and Code, this court will consider the motion to disqualify in light of the standards announced in ABA Model Rule 1.7.¹

As indicated above, ABA Model Rule 1.7 prohibits "concurrent conflicts of interest." Under Model Rule 1.7, Time Warner must establish two things: (1) that it is a current client of F&R; and (2) that F&R's representation of Rembrandt is directly adverse to it. Time Warner has demonstrated

¹ This holding renders it unnecessary to consider the question whether the *Digital Packet* case is a matter substantially related to this case.

both.

The first issue is whether Time Warner is a “current client” of F&R, even though the *Data Packet* litigation settled before Rembrandt filed suit against Time Warner. In *Snapping Shoals Elec. Membership Corp. v. RLI Insurance Corp.*, 2006 WL 1877078, at *2 (N.D. Ga. July 25, 2006), the court considered the question whether a client was a “current client” of a law firm under similar facts. The law firm argued that the client was not a current client because the one remaining matter covered by the representation had settled and the law firm agreed it would not take on any new work for the client. The court rejected this argument. The court stated: “[b]ecause it is undisputed that Paul Hastings has represented L-3 Titan during the pendency of the instant action, the court finds that L-3 Titan is a “current client” within the meaning of [Georgia] Rule 1.7(a).” In this case, it is undisputed that Time Warner was a client of F&R during the pendency of this case. For purposes of the present motion, Time Warner is therefore considered a current client of F&R.

Because the court considers Time Warner a current client of F&R, the second question is whether F&R is acting directly adverse to Time Warner. A Connecticut District Court recently addressed a similar issue. *Enzo Biochem, Inc. v. Applera Corp.*, ___ F.Supp.2d ___, 2007 WL 30338 (D. Conn. Jan. 5, 2007). In *Enzo*, the Hunton firm represented a client in a patent case against one defendant. The same plaintiff, represented by the Greenberg firm, sued a different defendant. Some of the same patents were asserted in both cases. A client of the Hunton firm, GE, later acquired the defendant being sued in the second case. The Hunton lawyers representing the plaintiff in the first case aided, to a certain extent, the Greenberg lawyers representing the plaintiff in the second case. GE contended that the Hunton firm’s concurrent representation of Enzo in the first case and the GE subsidiary sued by Enzo in the second case amounted to an impermissible conflict of

interest.

GE intervened in the first case and moved to disqualify the Hunton firm. The court evaluated the evidence and concluded that GE had not demonstrated a sufficient showing of direct adversity. The court stated that “while the construction of [the plaintiff’s] patents applicable to the infringement claims brought against two separate accused infringers . . . implicates pretrial *Markman* overlap, *the trials of how those constructions apply to the respective accused products or conduct are wholly separate.*” *Enzo*, 2007 WL 30338 at *7 (emphasis added). As a result, the court refused to disqualify the Hunton firm from representing the plaintiff in the first case.

The court agrees with *Enzo* that the mere possibility of overlapping *Markman* proceedings is insufficient to show direct adversity, particularly when the trials of how the constructions apply to accused products or conduct varies from defendant to defendant. Here, in contrast to *Enzo*, F&R is not simply advocating claim construction positions that might, at some later date, adversely impact Time Warner. F&R advocates that the Comcast defendants infringe the patents because the defendants comply with industry standards. In particular, F&R advocates in this case that Comcast infringes because it adheres to the ATSC standard for United States Patent No. 5,43,627 (“the ‘627 patent”) and DOCSIS for United States Patent Nos. 5,852,631, 4,937,819, and 5,719,858 (“the ‘631, ‘819, and ‘858 patents”). The practical significance of Rembrandt’s infringement theory is to indict for patent infringement all major cable companies who follow the industry standards. A finding of infringement and an injunction issued by this court against a cable company for compliance with industry standards would have a significant practical effect on Time Warner.

There are additional distinctions between this case and the *Enzo* decision that lead the court to find the requisite direct adversity. Rembrandt filed its cases in the same district. Its case against

Time Warner is pending before the same judge at roughly the same time as this case, but this case was filed first. Although it is true that the claim construction rulings in this case would not be binding on Time Warner, there is a likelihood that the positions taken by F&R in this case could, as a practical matter, prejudice Time Warner in subsequent proceedings. As a result, on these facts, this court reaches a different conclusion from the one in *Enzo*. F&R's representation of Rembrandt in this case is directly adverse to Time Warner.

The relevant national standard supports a finding that an impermissible conflict of interest exists. In this circuit, however, a disqualification motion requires the court to balance the likelihood of public suspicion against a party's right to counsel of choice. *FDIC v. United States Fire Ins. Co.*, 50 F.3d 1304, 1314 (5th Cir. 1995). In doing so, the court has considered the prejudice to Rembrandt. Rembrandt urges that F&R is its counsel of choice in this case and is extremely familiar with the technology at issue. In the court's view, however, this interest is not sufficient to overcome the grounds for disqualification. The court must consider Time Warner's reasonable expectations as well. Much of the prejudice might have been avoided had F&R disclosed this case when it solicited Time Warner's business in the *Digital Packet* litigation. Had that occurred, Time Warner could have secured other counsel and might not have been a current client of F&R during the pendency of this case. Moreover, Time Warner did not delay the filing of its motion. On balance, the court is confident that Rembrandt will be able to secure other counsel to prosecute this case without undue delay.

4. Conclusion.

The facts of this case tip in favor of disqualification because the court finds that the positions taken by F&R on behalf of Rembrandt are directly adverse to Time Warner. The court therefore

grants the motion to disqualify.

SIGNED this 8th day of February, 2007.

A handwritten signature in black ink, reading "T. John Ward", is written over a horizontal line.

T. JOHN WARD
UNITED STATES DISTRICT JUDGE

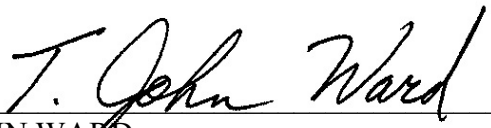
IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
Vs.	§	CIVIL ACTION NO. 2:05CV443
COMCAST CORP., ET AL.	§	

ORDER

The court grants the joint motion to suspend all deadlines pending appointment of new counsel for plaintiff (#143). The court suspends all deadlines for a period not to exceed 30 days pending appointment and appearance of new counsel for the plaintiff. The parties shall revisit appropriate deadlines as soon as new counsel appears and shall submit their proposal(s) to the court.

SIGNED this 8th day of February, 2007.



T. JOHN WARD
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
	§	
Plaintiff,	§	
	§	
vs.	§	Case No. 2:05-CV-00443-TJW
	§	
COMCAST CORPORATION;	§	JURY TRIAL REQUESTED
COMCAST CABLE	§	
COMMUNICATIONS, LLC; AND	§	
COMCAST OF PLANO, LP,	§	
	§	
Defendants.	§	

NOTICE OF APPEARANCE

Notice is hereby given that the undersigned attorney, Travis Gordon White, Texas State Bar No. 21333000, enters his appearance in this matter for Plaintiff, Rembrandt Technologies, LP, for the purpose of representing Plaintiff and receiving notices and orders from the Court.

DATED this 19th day of February, 2007.

Respectfully submitted,

McKOOL SMITH, P.C.

/s/ Travis Gordon White

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**ATTORNEYS FOR PLAINTIFF
REMBRANDT TECHNOLOGIES, LP**

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a), contemporaneously served upon all counsel who have consented to electronic service and served by first class mail on other counsel on this the 19th day of February, 2007.

/s/ Travis Gordon White
Travis Gordon White

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

NOTICE OF APPEARANCE OF LEAD COUNSEL

Notice is hereby given that the undersigned attorney, Bradley W. Caldwell, Texas State Bar No. 24040630, enters his appearance in this matter for Plaintiff, Rembrandt Technologies, LP, for the purpose of representing Plaintiff and receiving notices and orders from the Court.

DATED this 19th day of February, 2007.

Respectfully submitted,

McKOOL SMITH, P.C.

/s/ Bradley W. Caldwell

Sam Baxter

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**ATTORNEYS FOR PLAINTIFF
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CERTIFICATE OF SERVICE

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/s/ Bradley W. Caldwell
Bradley W. Caldwell

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

NOTICE OF APPEARANCE OF LEAD COUNSEL

Notice is hereby given that the undersigned attorney, Jeffrey A. Carter, Texas State Bar No. 03919400, enters his appearance in this matter for Plaintiff, Rembrandt Technologies, LP, for the purpose of representing Plaintiff and receiving notices and orders from the Court.

DATED this 19th day of February, 2007.

Respectfully submitted,

McKOOL SMITH, P.C.

/s/ Jeffrey A. Carter

Sam Baxter

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**ATTORNEYS FOR PLAINTIFF
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/s/ Jeffrey A. Carter
Jeffrey A. Carter

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP	§	
	§	
Plaintiff,	§	
	§	
vs.	§	Case No. 2:05-CV-00443-TJW
	§	
COMCAST CORPORATION;	§	JURY TRIAL REQUESTED
COMCAST CABLE	§	
COMMUNICATIONS, LLC; AND	§	
COMCAST OF PLANO, LP,	§	
	§	
Defendants.	§	

NOTICE OF APPEARANCE OF LEAD COUNSEL

COMES NOW, Plaintiff, Rembrandt Technologies, LP, in the above-referenced matter, and gives notice to the Court and all Parties that the following counsel is appearing as lead counsel for Rembrandt Technologies, LP:

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Dated this 19th day of February, 2007.

Respectfully submitted,

McKOOL SMITH, P.C.

/s/ Sam Baxter

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**ATTORNEYS FOR PLAINTIFF
REMBRANDT TECHNOLOGIES, LP**

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/s/ Sam Baxter
Sam Baxter

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

NOTICE OF APPEARANCE

Notice is hereby given that the undersigned attorney, John Garvish, Texas State Bar No. 24043681, enters his appearance in this matter for Plaintiff, Rembrandt Technologies, LP, for the purpose of representing Plaintiff and receiving notices and orders from the Court.

DATED this 19th day of February, 2007.

Respectfully submitted,

McKOOL SMITH, P.C.

/s/ John Garvish

Sam Baxter

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**ATTORNEYS FOR PLAINTIFF
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CERTIFICATE OF SERVICE

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/s/ John Garvish
John Garvish

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

[illegible]

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

**STATUS REPORT
ON
CLAIM CONSTRUCTION HEARING AND CASE SCHEDULE**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”), pursuant to this Court’s Orders of February 1, 2007 (Docket No. 140) and February 8, 2007 (Docket No. 145) submits this Status Report on (i) the Claim Construction Hearing and (ii) the Case Schedule.

1. **Claim Construction Hearing.** Rembrandt will be prepared to proceed with the Claim Construction Hearing in this case the week of April 23, 2007, or any time thereafter. Rembrandt requests that the Court set the Claim Construction Hearing as the Court's schedule permits during or after the week of April 23, 2007.

2. **Case Schedule.** If acceptable to the Court, Rembrandt proposes that within 15 business days after the date the Court informs the Parties of the new date for the Claim Construction Hearing, Rembrandt will inform the Court whether it believes that a new schedule is necessary and, if necessary, will submit a proposed schedule with new deadlines. Rembrandt will attempt to reach agreement with the Comcast Parties on any proposed deadlines.

Dated: March 8, 2007

Respectfully, submitted,

/s/ Sam Baxter

Sam Baxter

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CERTIFICATE OF CONFERENCE

Counsel for Rembrandt discussed the status report with counsel for the Comcast Parties.
The Comcast Parties were not able to join in the status report.

/s/ Jeffrey A. Carter

Jeffrey A. Carter

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a), contemporaneously served upon all counsel who have consented to electronic service and served by first class mail on other counsel on this the 8th day of March, 2007.

/s/ Sam Baxter
Sam Baxter

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

[illegible]

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

ORDER REGARDING CLAIM CONSTRUCTION HEARING AND CASE SCHEDULE

Pursuant to this Court's Orders of February 1, 2007 (Docket No. 140) and February 8, 2007 (Docket No. 145), Plaintiff Rembrandt Technologies, LP, filed a Status Report regarding the resetting of the Claim Construction Hearing and a proposed schedule for this case. The Court hereby sets the Claim Construction Hearing for _____, 2007. Rembrandt has 15 business days from the date of this Order either to inform the Court that it should keep the current schedule or to submit a proposed schedule setting forth new deadlines for the remainder of this case. Rembrandt is to attempt to reach agreement with the Comcast Parties on any proposed new deadlines before submitting them to the Court.

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

§ § § § §

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

**JOINT MOTION TO AMEND
THE AMENDED PROTECTIVE ORDER**

Pursuant to paragraph 24 of the Court's Amended Protective Order (Docket No. 115), the parties jointly move to amend the Amended Protective Order as set forth in the attached Stipulation and Proposed Order.

WHEREFORE, the parties request that the Court approve the attached Stipulation and Proposed Order.

Dated: March 8, 2007

Respectfully submitted,

/s/ Sam Baxter

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/s/ Harry Lee Gillam, Jr.
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**ATTORNEYS FOR DEFENDANTS
COMCAST CORPORATION, COMCAST
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COMCAST OF PLANO, LP**

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ATTORNEYS FOR PLAINTIFF
REMBRANDT TECHNOLOGIES, LP

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a), contemporaneously served upon all counsel who have consented to electronic service and served by first class mail on other counsel on this the 8th day of March, 2007.

/s/ Sam Baxter

Sam Baxter

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REMBRANDT TECHNOLOGIES, LP

Plaintiff,

VS.

**COMCAST CORPORATION;
COMCAST CABLE
COMMUNICATIONS, LLC; AND
COMCAST OF PLANO, LP,**

Defendants.

§ § § § § § § § § § § § § §

Case No. 2:05-CV-00443-TJW

JURY TRIAL REQUESTED

**JOINT STIPULATION AND ORDER
TO AMEND
THE AMENDED PROTECTIVE ORDER**

Plaintiff Rembrandt Technologies, LP (“Rembrandt”) and Defendants Comcast Corporation, Comcast Cable Communications, LLC, and Comcast of Plano, LP, pursuant to paragraph 24 of the Court’s Amended Protective Order (Docket No. 115), hereby stipulate and jointly request that **paragraph 4(h)** of the Amended Protective Order be amended as follows:

1. that Fish & Richardson P.C., 225 Franklin Street, Boston, MA 02110 be deleted from the list of outside counsel for Rembrandt and
2. that McKool Smith P.C., 300 Crescent Court, Suite 1500, Dallas, Texas 75201 be added to the list of outside counsel for Rembrandt.

Dated: March 8, 2007

SO STIPULATED:

/s/ Sam Baxter

Sam Baxter
State Bar No. 01938000
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REMBRANDT TECHNOLOGIES, LP

IT IS SO ORDERED this ____ day of _____, 2007.

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:05-CV-443-TJW
)
COMCAST CORPORATION, COMCAST)
CABLE COMMUNICATIONS, LLC,)
COMCAST OF PLANO, LP,)
)
Defendants)
_____)

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:06-CV-506-TJW
)
COMCAST CORPORATION, COMCAST)
CABLE COMMUNICATIONS, LLC,)
COMCAST OF PLANO, LP,)
)
Defendants)
_____)

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:06-CV-047-TJW
)
SHARP CORPORATION and SHARP)
ELECTRONICS CORP.)
)
Defendants)
_____)

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:06-CV-369-TJW
)
TIME WARNER CABLE, INC.)
)
Defendant)
_____)

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:06-CV-224-TJW
)
TIME WARNER CABLE, INC.)
)
Defendant)
_____)

REMBRANDT TECHNOLOGIES, LP)
)
Plaintiff,)
)
v.) Case No. 2:06-CV-507-TJW
)
CHARTER COMMUNICATIONS, INC.,)
CHARTER COMMUNICATIONS)
OPERATING, LLC, COXCOM,)
INC., CSC HOLDINGS, INC., and)
CABLEVISION)
SYSTEMS CORPORATION)
Defendants)
_____)

REMBRANDT TECHNOLOGIES, LP)	
)	
Plaintiff,)	
)	
v.)	Case No. 2:06-CV-223-TJW
)	
CHARTER COMMUNICATIONS, INC.,)	
CHARTER COMMUNICATIONS)	
OPERATING, LLC, COXCOM,)	
INC., CSC HOLDINGS, INC., and)	
CABLEVISION)	
SYSTEMS CORPORATION)	
)	
Defendants)	
_____)	

**NOTICE OF FILING MOTION FOR TRANSFER AND CONSOLIDATION OF
REMRBANDT TECHNOLOGIES, LP PATENT LITIGATION
PURSUANT TO 28 U.S.C. § 1407**

PLEASE TAKE NOTICE that, pursuant to J.P.M.L. Rule 5.2(b), on March 9th, 2007, CoxCom, Inc. filed its Motion for Transfer and Consolidation of the Rembrandt Technologies, LP Patent Litigation Pursuant to 28 U.S.C. § 1407 with the Judicial Panel on Multidistrict Litigation in Washington, D.C. CoxCom, Inc. is a named defendant in both *Rembrandt Technologies, LP v. Charter Communications, Inc., et. al.*; Civil Action No. 2:06-CV-507, and *Rembrandt Technologies, LP v. Charter Communications, Inc., et. al.*; Civil Action No. 2:06-CV-223, both pending before Judge T. John Ward in the Eastern District of Texas. Enclosed with this Notice are copies of the motion for transfer and consolidation and all documents in support thereof.

Dated: March 9th, 2006.

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Respectfully Submitted



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R. Scott Griffin

ATTORNEYS FOR COXCOM, INC.

CERTIFICATE OF SERVICE

The Undersigned certifies that a copy of the NOTICE OF FILING MOTION FOR TRANSFER AND CONSOLIDATION OF REMBRANDT TECHNOLOGIES, LP PATENT LITIGATION PURSUANT TO 28 U.S.C. § 1407 was filed electronically in compliance with local rule CV-5(a) and contemporaneously served by first class mail on all counsel of record in the above-captioned cases.



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ATTORNEY FOR COXCOM, INC.

BEFORE THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

In re:

Rembrandt Technologies, LP Patent
Litigation

MDL Docket No.

**MOTION FOR TRANSFER AND CONSOLIDATION OF REMBRANDT
TECHNOLOGIES PATENT LITIGATION PURSUANT TO 28 U.S.C. § 1407**

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Attorneys For COXCOM, INC.

Pursuant to 28 U.S.C. § 1407 and Rule 7.2 of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation (the “Panel”), Defendant CoxCom, Inc. (“CoxCom”)¹ moves the Panel for an Order: (1) transferring fourteen (14) related patent infringement actions filed by or against Rembrandt Technologies, LP (“Rembrandt”) (the “Actions”), as well as any actions that may subsequently be filed by or against Rembrandt, asserting similar or related claims to the District of Delaware.²

In support of this Motion, CoxCom states the following, as more fully explained in the accompanying Memorandum of Law:

1. This Motion seeks the transfer and consolidation of fourteen related actions for patent infringement filed by Rembrandt against twenty-nine defendants³ (the “Actions”), ten of which were filed within the last six months. The Actions have been filed in three judicial districts: the Eastern District of Texas; the District of Delaware; and the Southern District of New York.

¹ CoxCom is a defendant in the recently filed cases of *Rembrandt Technologies, LP v. Charter Communications, Inc., et al.*, No. 2:06-CV-223-TJW (E.D. Tex.) (Marshall Division) and *Rembrandt Technologies, LP v. Charter Communications, Inc., et al.*, No. 2:06-CV-507-TJW (E.D. Tex.) (Marshall Division). CoxCom is also a plaintiff in the recently filed declaratory judgment action of *CoxCom, Inc. v. Rembrandt Technologies, L.P.*, No. 06-721-GMS (D. Del.).

² As explained more fully in the accompanying Memorandum of Law, CoxCom moves for consolidation of all 14 related patent infringement actions, but suggests that, because of the illogical way in which the claims were grouped in the 14 cases, the most convenient, just and efficient administration of these actions would be achieved if the transferee court severed from the consolidated action those claims asserting the ‘627 patent for separate treatment and conduct. Claims relating to the ‘627 patent implicate completely different technology and activity (receipt and transmission of broadcast television signals through ATSC-compliant equipment) than the rest of the claims (which implicate high speed internet services through DOCSIS-compliant equipment).

³ The Actions were initially filed against twenty-nine defendants, but claims asserted against Cox Communications, Inc. and Cox Enterprises, Inc. were voluntarily dismissed. See *Rembrandt Technologies, LP v. Charter Communications, Inc., et al.*, No. 2:06-CV-223-TJW (E.D. Tex.).

2. Pursuant to Rule 7.2(a)(ii) of the Rules of the Panel, a schedule of the Actions is attached hereto as Exhibit A.

3. Plaintiff Rembrandt is a limited partnership organized under the laws of the State of New Jersey with its principal place of business in Bala Cynwyd, Pennsylvania. Rembrandt is a company that invests in patents, but does not practice them. Instead, it acquires rights to patents and sues entities it believes infringe upon those patents.

4. Rembrandt has initiated two waves of patent litigation relating to: (a) the receipt and transmission over the cable television systems of digital terrestrial broadcast signals that comply with the ATSC⁴ Digital Television Standard; and (b) the provision of high speed internet services through the use of DOCSIS⁵-compliant equipment.

5. Rembrandt filed the Actions in two waves, apparently as it became the assignee of the various patents in suit. The first wave of litigation (the “Rembrandt I” litigation) includes nine cases against fifteen current defendants spanning three industries (cable, television broadcast, and manufacturing) and asserts infringement of up to five patents. One of the five patents asserted in the Rembrandt I litigation, U.S. Patent No. 5,243,627 (the “‘627 patent”), is asserted against each of the Rembrandt I defendants. The ‘627 patent relates to the receipt and transmission of ATSC-compliant television broadcast signals. The remaining four patents asserted in the Rembrandt I litigation do not relate to the transmission of television signals. Instead, the remaining four patents relate to the provision of high speed internet service through the use of DOCSIS-compliant cable modems and related equipment. The second wave of litigation (the “Rembrandt II” litigation) includes

⁴ “Advanced Television System Committee”

⁵ “Data-Over-Cable Service Interface Specifications”

three cases filed by Rembrandt in the Eastern District of Texas against seven cable service providers (all of whom are also defendants in the Rembrandt I litigation), a declaratory judgment action filed by CoxCom in the District of Delaware, and an action filed in the Southern District of New York. The Rembrandt II litigation asserts infringement of five patents relating to the provision of high speed internet service and accuses the same DOCSIS-compliant equipment that is accused in the Rembrandt I litigation.

6. But for the claim of infringement of the '627 patent, all of the claims in the Rembrandt I and Rembrandt II actions relate to the provision of high speed internet and related services through the use of DOCSIS-compliant cable modems and related equipment.

7. For the Panel's convenience, a table identifying the asserted patents, the actions in which they have been asserted and the industry standards that are accused is attached to the Motion as Exhibit B.

8. There have been no substantive orders issued in any of the Actions and no claim construction hearings have been held.

9. In each of the Actions, defendants already have asserted, or may be expected to assert, overlapping defenses that some or all of the various asserted patent claims are not valid and/or not enforceable (i.e., void for inequitable conduct and/or prosecution laches) under the patent laws.

10. In each of the Actions, Rembrandt alleges that the defendants infringe its patents by virtue of their compliance with industry standards, either the ATSC standard with respect to the '627 patent or the DOCSIS standard with respect to the other patents in suit. Therefore, the Actions involve identical infringement allegations regarding the patents and the defendants may be expected to assert overlapping non-infringement defenses.

11. Transfer and consolidation of these Actions is necessary to: (a) eliminate the potential for inconsistent rulings on critical pretrial motions, including but not limited to, claim construction rulings; (b) eliminate the burden of duplicative discovery on common issues; (c) prevent inconsistent pretrial rulings; (d) avoid the unnecessary use of judicial resources; and (e) reduce the overall costs and burdens for all of the parties. Moreover, because the Actions assert infringement based on compliance with industry standards, the effect of having inconsistent rulings regarding industry standards would be significant and deleterious.

12. Due to the many overlapping patents, the Actions in this litigation involve common questions of fact. Each of the Actions involves allegations of infringement, invalidity and enforceability issues common to the overlapping patents. All the Actions can be expected to share factual and legal questions concerning such matters as the technology underlying the patents, the scope and content of the prior art, claim construction, the prosecution histories of the asserted patents and any inequitable conduct and/or unreasonable delays (prosecution laches) committed during their prosecution, and/or issues of infringement involving the patents.

13. The claims relating to the provision of high speed internet service and related services accuse the same DOCSIS-compliant equipment—cable modems and related equipment used by the cable service provider defendants in providing high speed internet service. However, because some of these claims are asserted in the Rembrandt I actions while others are asserted in the Rembrandt II actions and because seven of the cable service provider defendants have been sued in both the Rembrandt I and Rembrandt II actions, it is expected that the cable service provider defendants and the third parties who supply and

manufacture the accused equipment will be subjected to burdensome and inefficient discovery as they are forced to respond to overlapping and duplicative discovery requested in the separate actions.

14. Further, the question of damages will present many other common issues of fact among the Actions. Because Rembrandt is not a competitor of the defendants, Rembrandt can be expected to seek damages in the form of a reasonable royalty, which involves consideration of multiple factors as set forth in the seminal case of *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir. 1971). Because many of these factors relate to the specific patent or patent owner involved in the case, each patent for which Rembrandt seeks damages will present numerous common factual issues. Moreover, because the claims relating to the provision of high speed internet services straddle both Rembrandt I and Rembrandt II actions, because the claims accuse the same equipment, and because seven of the cable service provider defendants have been sued in both the Rembrandt I and Rembrandt II actions, there is a risk that Rembrandt may receive inflated damages.

15. Of the fourteen actions currently at issue, at least six are pending before Judge Gregory Sleet in the District of Delaware. These six actions assert five of the nine patents at issue in the Actions and implicate both of the accused industry standards. As such, Judge Sleet has the opportunity to gain familiarity with the patents, technology and industry standards at issue.

16. Judge Sleet has presided over a number of complex patent litigation cases in the past and has demonstrated an understanding and ability to effectively administer this type

of complex litigation. Moreover, Judge Sleet has already indicated an interest in at least coordinating the six actions pending in Delaware.

17. Consolidation and transfer before Judge Sleet in the District of Delaware is appropriate.

WHEREFORE CoxCom requests that this Panel enter an order transferring the Actions, as well as any actions that may subsequently be filed by or against Rembrandt asserting similar or related claims to the District of Delaware and consolidating those actions for coordinated pretrial proceedings.

This the 9th day of March 2007.

Respectfully Submitted:



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Exhibit A
SCHEDULE OF ACTIONS

NO.	NAME OF ACTION	DISTRICT COURT/ DIVISION	DATE ACTION FILED	CIVIL ACTION NUMBER	JUDGE ASSIGNED
1.	Rembrandt Technologies, LP v. Sharp Corporation and Sharp Electronics Corporation	U.S.D.C., Eastern District of Texas/Marshall Division	02/03/06	2:06-cv-047	T. John Ward
2.	Rembrandt Technologies, LP v. Comcast Corporation; Comcast Cable Communications, LLC; and Comcast of Plano, LP	U.S.D.C., Eastern District of Texas/Marshall Division	09/16/05	2:05-cv-443	T. John Ward
3.	Rembrandt Technologies, LP v. Comcast Corporation; Comcast Cable Communications, LLC; and Comcast of Plano, LP	U.S.D.C., Eastern District of Texas/Marshall Division	11/30/06	2:06-cv-506	T. John Ward
4.	Rembrandt Technologies, LP v. Time Warner Cable, Inc.	U.S.D.C., Eastern District of Texas/Marshall Division	06/01/06	2:06-cv-224	T. John Ward
5.	Rembrandt Technologies, LP v. Time Warner Cable, Inc.	U.S.D.C., Eastern District of Texas/Marshall Division	09/13/06	2:06-cv-369	T. John Ward
6.	Rembrandt Technologies, LP v. Charter Communications, Inc.; Charter Communications Operating, LLC; Cox Communications, Inc., Cox Enterprises, Inc.; CoxCom, Inc.; CSC Holdings, Inc., and Cablevision Systems Corporation	U.S.D.C., Eastern District of Texas/Marshall Division	06/01/06	2:06-cv-223	T. John Ward
7.	Rembrandt Technologies, LP v. Charter Communications, Inc.; Charter Communications Operating, LLC, and CoxCom, Inc.	U.S.D.C., Eastern District of Texas/Marshall Division	11/30/06	2:06-cv-507	T. John Ward

NO.	NAME OF ACTION	DISTRICT COURT/ DIVISION	DATE ACTION FILED	CIVIL ACTION NUMBER	JUDGE ASSIGNED
8.	Rembrandt Technologies, LP v. Cablevision Systems Corporation and CSC Holdings, Inc.	U.S.D.C., District of Delaware	10/13/06	1:06-cv-635	Gregory M. Sleet
9.	CoxCom, Inc. v. Rembrandt Technologies, LP	U.S.D.C., District of Delaware	11/30/06	1:06-cv-721	Gregory M. Sleet
10	Rembrandt Technologies, LP v. CBS Corporation	U.S.D.C., District of Delaware	12/01/06	1:06-cv-727	Gregory M. Sleet
11	Rembrandt Technologies, LP v. NBC Universal, Inc.	U.S.D.C., District of Delaware	12/01/06	1:06-cv-729	Gregory M. Sleet
12	Rembrandt Technologies, LP v. ABC, Inc.	U.S.D.C., District of Delaware	12/01/06	1:06-cv-730	Gregory M. Sleet
13	Rembrandt Technologies, LP v. Fox Entertainment Group, Inc. and Fox Broadcasting Company	U.S.D.C., District of Delaware	12/01/06	1:06-cv-731	Gregory M. Sleet
14	In Re Adelphia Communication Corp. Rembrandt Technologies, LP v. Adelphia Communications Corp. Corporation, Century-TCI California Communications, LP, Century- TCI Distribution Company, LLC, Century- TCI Holdings, LLC, Parnassos, L.P., Parnassos Communications, LP, Parnassos Distribution Company I, LLC, Parnassos Distribution Company II, LLC, Parnassos Holdings, LLC, Western NY Cablevision, LP	U.S. Bankr. Court and U.S.D.C., Southern District of New York	01/11/07	Bankr: 02-41729 U.S.D.C.: 1:07-cv-214	Bankr: Robert E. Gerber U.S.D.C.: William H. Pauley III

EXHIBIT B
Rembrandt Litigation

Patent	Rembrandt v. Sharp (2:06-cv-047- TJW)	Rembrandt v. Comcast (2:05-cv-443- TJW)	Rembrandt v. Comcast (2:06-cv-506- TJW)	Rembrandt v. Time Warner (2:06-cv-224- TJW)	Rembrandt v. Time Warner (2:06-cv-369- TJW)	Rembrandt v. Charter, et al. (2:06-cv-223- TJW)	Rembrandt v. Charter, et al. (2:06-cv-507- TJW)	Rembrandt v. Cablevision (1:06-cv-635- GMS)	CoxCom v. Rembrandt (1:06-cv-721- GMS)	Rembrandt v. CBS (1:06-cv-727- GMS)	Rembrandt v. NBC (1:06-cv-729- GMS)	Rembrandt v. ABC (1:06-cv-730- GMS)	Rembrandt v. Fox (1:06-cv-731- GMS)	Rembrandt v. Adelphia et al. (1:07-cv-214- WHP)
'627 (5,243,627)	XXX	XXX		XXX		XXX		XXX		XXX	XXX	XXX		
'631 (5,852,631)		XXX		XXX		XXX		XXX						
'858 (5,719,858)		XXX		XXX		XXX		XXX						
'819 (4,937,819)		XXX		XXX		XXX		XXX						
'761 (5,710,761)			XXX		XXX		XXX							XXX
'234 (5,778,234)			XXX		XXX		XXX							XXX
'159 (6,131,159)			XXX		XXX		XXX							XXX
'444 (6,950,444)			XXX		XXX		XXX							XXX
'903 (5,008,903)			XXX		XXX		XXX	XXX	XXX					

Legend:

Blue cases are pending in the E.D. Tex.

Gold cases are pending in the D. Del.

Purple case is pending in the S.D.N.Y.

Green patents implicate the ATSC industry standard.

Red patents implicate the DOCSIS industry standard.

Shaded columns indicate the Rembrandt I cases.

Clear columns indicate the Rembrandt II cases.

BEFORE THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

In re:)	
)	
Rembrandt Technologies, LP Patent)	MDL Docket No.
Litigation)	
)	

**MEMORANDUM OF LAW
IN SUPPORT OF MOTION TO TRANSFER AND CONSOLIDATION OF
REMBRANDT TECHNOLOGIES, LP PATENT LITIGATION
PURSUANT TO 28 U.S.C. § 1407**

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TABLE OF ABBREVIATIONS

Full Name	Abbreviation
CoxCom, Inc.	CoxCom
Rembrandt Technologies, LP	Rembrandt
Sharp Corporation and Sharp Electronics Corporation	Sharp
Time Warner Cable, Inc.	Time Warner
Charter Communications, Inc. and Charter Communications Operating, LLC,	Charter
Cablevision Systems Corporation and CSC Holdings, Inc.	Cablevision
Adelphia Communications Corporation, Century-TCI California Communications, LP, Century- TCI Distribution Company, LLC, Century- TCI Holdings, LLC, Parnassos, L.P., Parnassos Communications, LP, Parnassos Distribution Company I, LLC, Parnassos Distribution Company II, LLC, Parnassos Holdings, LLC, Western NY Cablevision, LP	Adelphia
Comcast Corporation; Comcast Cable Communications, LLC; and Comcast of Plano LP	Comcast
CBS Corporation	CBS
NBC Universal, Inc.	NBC
ABC, Inc.	ABC
Fox Entertainment Group, Inc. and Fox Broadcasting Company	Fox
Rembrandt I Patents:	Rembrandt I Patents:
U.S. Patent No. 5,243,627	‘627 Patent
U.S. Patent No. 5,852,631	‘631 Patent
U.S. Patent No. 5,719,858	‘858 Patent
U.S. Patent No. 4,937,819	‘819 Patent
Litigation initiated by Rembrandt in 2005 and 2006 involving the ‘627, ‘631, ‘858, and ‘819 patents.	Rembrandt I litigation
Rembrandt II Patents:	Rembrandt II Patents:
U.S. Patent No. 5,008,903	‘903 Patent
U.S. Patent No. 5,710,761	‘761 Patent
U.S. Patent No. 5,778,234	‘234 Patent

U.S. Patent No. 6,131,159	‘159 Patent
U.S. Patent No. 6,950,444	‘444 Patent
Litigation initiated by Rembrandt in 2006 involving the ‘903, ‘761, ‘234, ‘159, and ‘444 patents.	Rembrandt II litigation
Data-Over-Cable Service Interface Specifications	DOCSIS
Advanced Television System Committee	ATSC
United States District Court for the Eastern District of Texas	E.D. Tex.
United States District Court for the District of Delaware	D. Del.
United States District Court for the Southern District of New York	S.D.N.Y.

BRIEF IN SUPPORT OF MOTION FOR TRANSFER AND CONSOLIDATION FOR COORDINATED PRETRIAL PROCEEDINGS

Pursuant to 28 U.S.C. §1407 and Rule 7.2 of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation, Defendant CoxCom¹ submits this Memorandum of Law in Support of its Motion for Transfer and Consolidation of the Rembrandt Technologies, LP Patent Litigation pursuant to 28 U.S.C. §1407. CoxCom moves the Panel for an Order transferring and consolidating fourteen (14) related patent infringement actions filed by or against Rembrandt, as well as any actions that may subsequently be filed by or against Rembrandt, asserting similar or related claims to the District of Delaware.²

I. BACKGROUND OF THE LITIGATION

This Motion seeks transfer and consolidation of fourteen related actions for alleged patent infringement filed by or against Rembrandt in three District Courts, ten of which were filed within the last six months (collectively, the “Actions”). Nine of the Actions allege infringement of numerous overlapping patents relating to the provision of high speed internet services through the use of DOCSIS-compliant equipment. *See, e.g.*, Ex. 13 ¶¶ 19-36³; Ex.

¹ CoxCom is a defendant in the recently filed cases of *Rembrandt v. Charter, et al.*, No. 2:06-CV-223-TJW (E.D. Tex.) and *Rembrandt v. Charter, et al.*, No. 2:06-CV-507-TJW (E.D. Tex.). CoxCom is also a plaintiff in the recently filed declaratory judgment action of *CoxCom v. Rembrandt*, No. 06-721-GMS (D. Del.).

² CoxCom moves the Panel for consolidation of all 14 related patent infringement actions, but suggests that, because of the illogical way in which the claims were grouped in the 14 cases, the most convenient, just and efficient administration of these actions would be achieved if the transferee court severed from the consolidated action the claims of the ‘627 patent for separate treatment and conduct. Rembrandt asserts the claims of the ‘627 patent against completely different technology and activity (receipt and transmission of broadcast television signals through ATSC-compliant equipment) than the rest of the patent claims (which are asserted against high speed internet services through DOCSIS-compliant equipment).

³ Except as otherwise indicated, references to Exhibits 1-42 refer to the Exhibits in Support of Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation filed concurrently herewith. References to Exhibits A-B refer to the exhibits attached to the Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation.

15 ¶¶ 8-32. Of these nine actions, four also allege infringement of a separate and distinct patent, the '627 patent, relating to the receipt and transmission over the cable television systems of digital terrestrial broadcast signals that comply with the ATSC Digital Television Standard. *See, e.g.*, Ex.13 ¶¶ 13-18. The five remaining actions allege infringement solely of the '627 patent. *See, e.g.*, Ex. 22 ¶¶ 6-12. Pursuant to Rule 7.2(a)(ii) of the Rules of the Panel, a schedule of the fourteen Actions is attached as Exhibit A to the Motion.

Due to the large number of overlapping patents asserted in the Actions and the fact that Rembrandt contends that industry standards infringe the patents in suit, the Actions present numerous common issues of fact and law regarding such matters as the technology underlying the patents, the prior art, the construction of the patent claims, the validity, enforceability and the alleged infringement of the patents, and the extent to which the doctrine of prosecution history estoppel precludes any finding of infringement under the doctrine of equivalents. Accordingly, if the Actions are not transferred and consolidated, needless expense and waste of judicial resources will be incurred as fourteen actions go forward on separate tracks. Moreover, without transfer and consolidation, there is a serious risk of inconsistent pre-trial rulings (especially on the critical issues of claim construction and prosecution history estoppel) and, thus, the distinct possibility of inconsistent judgments on the merits. Because the Actions assert infringement based on compliance with industry standards, the effect of having inconsistent rulings regarding industry standards would be significant and deleterious.

By contrast, consolidation in a single district, will conserve judicial resources, reduce costs, prevent duplicative discovery and protect against inconsistent pre-trial rulings and

contradictory results. Presumably for these reasons, even Rembrandt believes that transfer and consolidation under 28 U.S.C. § 1407 is desirable. Ex. 43 at Ex. C at 13:16-14:10.

II. FACTUAL BACKGROUND

A. Rembrandt

Rembrandt is a New Jersey limited partnership with its principal place of business in Bala Cynwyd, Pennsylvania. Ex. 20 ¶ 2. Rembrandt is a non-practicing entity (“NPE”)—a firm that invests in patents for the purpose of litigating patent infringement and obtaining royalties and licenses, but does not practice the patents. *Id.* ¶¶ 7, 9. According to its website, Rembrandt “shoulders the legal, financial, and business risks associated with pursuing patent pirates and provides the capital and expertise required to litigate complex patent infringements.” *Id.* ¶ 8. To pursue such patent infringement litigation, Rembrandt maintains a “staff of in-house professionals and outside consultants” that “includes scientists, inventors, financial analysts, lawyers, and researchers who are expert at identifying the validity and market value of patents and Intellectual Property (IP), and securing revenue for these inventors and companies as well as Rembrandt’s investors.” *Id.* In fact, Rembrandt distinguishes itself from other NPEs by emphasizing its willingness and “ability to pursue patent infringement.” *Id.* Rembrandt claims to have raised \$150 million “to acquire patents and litigate patent infringement.” *Id.*

Rembrandt filed the Actions in two waves, apparently as it became the assignee of the various patents in suit. As a result, the Actions were not broken out in a logical fashion. Instead, four of the actions assert two separate and unrelated sets of patents and accuse two separate and unrelated industry standards. Despite this timing issue, the two waves of litigation (“Rembrandt I” and “Rembrandt II”) overlap significantly with regard to the

alleged infringers and the accused activities as they relate to those patents implicating the DOCSIS industry standard. Those cases asserting the '627 patent (implicating the ATSC industry standard) also overlap with respect to the accused activities.

B. The Present Actions

NAME OF ACTION	DISTRICT COURT	CIVIL ACTION NUMBER
<i>Rembrandt I Litigation</i>		
<i>Rembrandt Technologies, LP v. Sharp Corp., et al.</i>	E.D. Tex.	2:06-cv-047
<i>Rembrandt Technologies, LP v. Comcast Corp., et al.</i>	E.D. Tex.	2:05-cv-443
<i>Rembrandt Technologies, LP v. Time Warner Cable, Inc.</i>	E.D. Tex.	2:06-cv-224
<i>Rembrandt Technologies, LP v. Charter Commc'n, et al.</i>	E.D. Tex.	2:06-cv-223
<i>Rembrandt Technologies, LP v. Cablevision Sys., et al.</i>	D. Del.	1:06-cv-635
<i>Rembrandt Technologies, LP v. CBS Corp.</i>	D. Del.	1:06-cv-727
<i>Rembrandt Technologies, LP v. NBC Universal, Inc.</i>	D. Del.	1:06-cv-729
<i>Rembrandt Technologies, LP v. ABC, Inc.</i>	D. Del.	1:06-cv-730
<i>Rembrandt Technologies, LP v. Fox Entm't Group, Inc., et al.</i>	D. Del.	1:06-cv-731
<i>Rembrandt II Litigation</i>		
<i>Rembrandt Technologies, LP v. Comcast Corp., et al.</i>	E.D. Tex.	2:06-cv-506
<i>Rembrandt Technologies, LP v. Time Warner Cable, Inc.</i>	E.D. Tex.	2:06-cv-369
<i>Rembrandt Technologies, LP v. Charter Commc'n, et al.</i>	E.D. Tex.	2:06-cv-507
<i>CoxCom, Inc. v. Rembrandt Technologies, LP</i>	D. Del.	1:06-cv-721
<i>Rembrandt Technologies, LP v. Adelphia Commc'n Corp., et al.</i>	S.D.N.Y.	1:07-cv-214

The Rembrandt I litigation includes nine cases against fifteen current defendants spanning three industries (cable, television broadcast, and manufacturing) and asserts infringement of up to five patents. One of the five patents asserted in the Rembrandt I litigation, the '627 patent, is asserted against each of the fifteen current Rembrandt I defendants. Rembrandt contends that the '627 patent covers the receipt and transmission of ATSC-compliant television broadcast signals. *See, e.g.*, Ex. 13 ¶¶ 13-18. The remaining four patents asserted in the Rembrandt I litigation do not relate to the transmission of

television signals. Instead, Rembrandt asserts the remaining four patents against the provision of high speed internet service through the use of DOCSIS-compliant cable modems and related equipment. Ex. 13 ¶¶ 19-36; *see also* Ex 19 at 1-3.

The Rembrandt II litigation includes three cases filed by Rembrandt in the E.D. Tex. against seven cable service providers (all of whom are also defendants in the Rembrandt I litigation), a declaratory judgment action filed by CoxCom in the D. Del., and an action filed in the S.D.N.Y against Adelphia.⁴ In the Rembrandt II litigation, Rembrandt alleges infringement of five patents based on the Defendants' provision of high speed internet service and accuses the same DOCSIS-compliant equipment that is accused in the Rembrandt I litigation.⁵ *See, e.g.*, Ex. 15 ¶¶ 8-32; *see also* Ex. 32 ¶¶ 20-28.

But for the claim of infringement based on the '627 patent, all of the infringement claims in the Rembrandt I and Rembrandt II actions relate to the provision of high speed internet and related services using DOCSIS-compliant cable modems and related equipment. Because of the illogical way in which these actions were filed, it is necessary to consolidate not only all of those cases asserting patents implicating the DOCSIS industry standard, but also those cases asserting the '627 patent implicating the ATSC industry standard.

1. The Rembrandt I Litigation.

a. Rembrandt v. Sharp, No. 2:06-cv-047 (E.D. Tex.).

Rembrandt filed the *Sharp* action on February 3, 2006, in the E.D. Tex., asserting the '627 patent. *See* Ex. 1 ¶¶ 6-10. As of March 6, 2007, the defendants have answered and

⁴ The lawsuit against Adelphia was initiated as an adversary proceeding filed in Adelphia's bankruptcy matter. *See* Ex. 33.

⁵ For the Panel's convenience, a table identifying the asserted patents, the actions in which they have been asserted and the industry standards which are accused is attached to the Motion as Exhibit B.

filed counterclaims, which also have been answered. No discovery has been taken and no substantive orders have been issued. *See* Ex. 2. In fact, the court just presided over the initial case management conference on February 20, 2007. *Id.*

b. Rembrandt v. Comcast, et al., No. 2:05-cv-443 (E.D. Tex.).

Rembrandt filed the first *Comcast* complaint on September 16, 2005 in the E.D. Tex., asserting the ‘627 patent against the ATSC standard and three other patents (‘631, ‘819, and ‘858) against DOCSIS. *See* Ex. 3 ¶¶ 13-30. There have been no substantive orders issued. *See* Ex. 4. A claim construction hearing was to be held on February 8, 2007. However, after granting a motion to disqualify Rembrandt’s counsel, the court canceled the hearing, suspended all deadlines and ordered the parties to submit a proposed schedule after plaintiff retained new counsel and such counsel appeared in the case. Ex. 5; Ex. 6. No new schedule has yet been proposed to or issued by the court. Ex. 4.

c. Rembrandt v. Time Warner, No. 2:06-cv-224 (E.D. Tex.) and Rembrandt v. Charter, et al., No. 2:06-cv-223 (E.D. Tex.).

On June 1, 2006, Rembrandt filed actions in the E.D. Tex. against Time Warner, Charter, CoxCom and their respective related entities, asserting the same patents (‘627, ‘631, ‘819, ‘858) Rembrandt asserted in the *Comcast* case. *See* Ex. 9 ¶¶ 6-29; Ex. 13 ¶¶ 13-36. As of March 6, 2007, the defendants have answered and filed counterclaims, which have been answered. *See* Ex. 10; Ex. 14. CoxCom moved to dismiss for lack of personal jurisdiction. *Id.* No discovery has been taken and no substantive orders have been issued. *Id.*; Ex. 10.

d. Rembrandt v. Cablevision, No. 1:06-cv-635 (D. Del.).

On October 13, 2006, Rembrandt filed an action against Cablevision in the D. Del., asserting the same four patents (‘627, ‘631, ‘819, ‘858) Rembrandt asserted in the prior E.D.

Tex. cases, and an additional patent (the ‘903 patent) against DOCSIS. *See* Ex. 17 ¶¶ 8-37.

As of March 6, 2007, the defendants have answered and filed counterclaims, which also have been answered. *See* Ex. 18. Within the last month, defendants have served written discovery requests and their mandatory disclosures required by Rule 26(a) of the Federal Rules of Civil Procedure. *Id.* No substantive orders have issued. *Id.*

e. Rembrandt v. CBS, No. 1:06-cv-727 (D. Del.); Rembrandt v. NBC, No. 1:06-cv-729 (D. Del.); Rembrandt v. ABC, No. 1:06-cv-730 (D. Del.), and Rembrandt v. Fox, No. 1:06-cv-731 (D. Del.).

On December 1, 2006, Rembrandt filed in the D. Del. four separate actions against CBS, NBC, ABC and Fox broadcasting companies asserting the ‘627 patent. *See* Ex. 22 ¶¶ 6-12; Ex. 24 ¶¶ 6-12; Ex. 26 ¶¶ 6-12; Ex. 28 ¶¶ 7-13. As of March 6, 2007, the defendants have answered and filed counterclaims, which also have been answered. *See* Ex. 23; Ex. 25; Ex. 27; Ex. 29. No discovery has been taken and no substantive orders have been issued. *Id.*

2. The Rembrandt II Litigation.

a. Rembrandt v. Time Warner, No. 2:06-cv-369 (E.D. Tex.).

On September 13, 2006, Rembrandt initiated a new wave of litigation against the cable service providers with an action against Time Warner filed in the E.D. Tex., asserting five additional patents against DOCSIS. *See* Ex. 11 ¶¶ 11-35. Specifically, Rembrandt’s complaint asserts infringement of the ‘761, ‘234, ‘159, ‘444 and ‘903 patents. *Id.* Time Warner has answered and filed counterclaims, which have been answered. *See* Ex. 12. On February 23, 2007, Rembrandt moved for leave to amend its complaint. *Id.* No discovery has been taken and no substantive orders have been issued. *Id.*

b. *Rembrandt v. Comcast, No. 2:06-cv-506 (E.D. Tex.) and Rembrandt v. Charter, et al., No. 2:06-cv-507 (E.D. Tex.).*

On November 30, 2006, Rembrandt filed two more actions against cable companies Comcast, Charter, CoxCom, and their respective related entities, asserting infringement of the same five additional patents ('761, '234, '159, '444 and '903) against DOCSIS. *See* Ex. 7 ¶¶ 6-30; Ex. 15 ¶¶ 8-32. As of March 6, 2007, the defendants have answered and filed counterclaims, which have been answered. *See* Ex. 8; Ex. 16. CoxCom has moved for dismissal or, in the alternative, to transfer to the D. Del. *Id.* No discovery has been taken and no substantive orders have been issued. *Id.*; Ex. 16.

c. *CoxCom v. Rembrandt, No. 1:06-cv-721 (D. Del.).*

CoxCom filed a declaratory judgment action in the D. Del. on November 30, 2006, seeking declarations as to the noninfringement and invalidity as to the '903 patent. *See* Ex. 20 ¶¶ 18-22. The declaratory judgment action was filed four hours before Rembrandt filed suit against CoxCom in the E.D. Tex. Rembrandt has moved to dismiss the action. *See* Ex. 21. No discovery has been taken and no substantive orders have been issued. *Id.*

d. *Rembrandt v. Adelphia, No. 1:07-cv-214 (S.D.N.Y.).*

On September 13, 2006, Rembrandt filed an adversary proceeding in the Adelphia bankruptcy action pending in the S.D.N.Y., asserting four of the DOCSIS patents asserted against the other cable companies (the '761, '234, '159, and '444 patents). *See* Ex. 33 ¶¶ 18-37. On January 10, 2007, Rembrandt moved to withdraw the reference to the bankruptcy court so that the litigation would proceed in the district court. *See* Ex. 30. Adelphia has filed an opposition to the motion. *See Id.* The motion has not yet been resolved. *Id.*

III. ARGUMENT

Under 28 U.S.C. § 1407(a), civil actions “involving one or more common questions of fact,” pending in different federal districts may be transferred to a single district for coordinated or consolidated pretrial proceedings. Transfers are appropriate if the Panel determines that “transfers for such proceedings will be for the convenience of parties and witnesses and will promote the just and efficient conduct of such actions.” *Id.* The Actions involved in this litigation easily satisfy each of these requirements.

A. **The Actions Present Many Common Questions of Fact.**

The Panel has recognized that actions involving overlapping patents are particularly well-suited for consolidation under 28 U.S.C. §1407 because they, by their very nature, present many common questions of fact. For example, in *In re Acacia Media Techs. Corp. Patent Litg.*, the Panel recognized that when overlapping patents are asserted in multiple actions, “[a]ll actions . . . can be expected to share factual and legal questions concerning such matters as the technology underlying the patents, prior art, claim construction and/or issues of infringement involving the patents.” 360 F. Supp. 2d 1377, 1379 (J.P.M.L. 2005); *accord In re PharmaStem Therapeutics, Inc., Patent Litig.*, 360 F. Supp. 2d 1362, 1364 (J.P.M.L. 2005) (consolidating five actions asserting overlapping patents with a related unfair competition action); *In re MLR, LLC, Patent Litig.*, 269 F. Supp. 2d 1380 (ordering consolidation of three actions dealing with cellular phone and/or modem products, on the basis that overlapping complex patents, “can thus be expected to share factual and legal questions concerning such matters as patent validity, prior art, obviousness and interpretation of various claims of the patents.”).

Here, Rembrandt has asserted many overlapping patents in each of the Actions.

Specifically, as shown in Exhibit B attached to the Motion:

- Four (4) patents ('761, '234, '159 and '444) have been asserted in four actions;
- Three (3) patents ('631, '858, and '819) have been asserted in four actions;
- One (1) patent ('903) has been asserted in five actions; and
- One (1) patent ('627) has been asserted in nine actions.

Due to the large number of overlapping patents asserted by Rembrandt in the Actions, this litigation involves many common questions of fact. Each of the Actions involve allegations of infringement, invalidity and enforceability issues common to the overlapping patents. The Actions, therefore, can be expected to share factual and legal questions concerning such matters as the technology underlying the patents, the scope and content of the prior art, claim construction, the prosecution histories of the asserted patents and any inequitable conduct and/or unreasonable delays (prosecution laches) committed during their prosecution, and/or issues of infringement involving the patents.

The Panel has routinely recognized that the issue of infringement are likely to raise common questions of fact in multidistrict patent litigation actions. *See In re Acacia Media Techs. Corp. Patent Litg.*, 360 F. Supp. 2d 1377, 1379 (J.P.M.L. 2005) (where overlapping patents are asserted in multiple actions it can be expected that they share factual and legal questions concerning issues such as infringement involving the patents); *In re Mirtazapine Patent Litig.*, 199 F. Supp. 2d 1380, 1381 (J.P.M.L. 2002) (ordering consolidation of six actions involving common infringement and invalidity contentions). Furthermore, when actions involve the same underlying technology, as these do here, claims of infringement as to each defendant will necessarily involve common questions of fact.

All of the Actions involve the same underlying technologies and industry standards—the provision of high speed internet services by virtue of DOCSIS-compliant modems and related equipment; or, in the case of the ‘627 patent, the receipt and transmission of ATSC-compliant television broadcast signals. Because the accused systems in each of the Actions is DOCSIS-compliant or ATSC-compliant, claims of infringement as to each defendant will necessarily involve common questions of fact, therefore making them appropriate for consolidation. *See* Ex. 43 at Ex. C at 5:22-7:20 (arguing that the DOCSIS standard infringes and, thus, any services that comply with the standard also infringe); *see also In re FMC Corp. Patent Litig.*, 422 F.Supp. 1163, 1165 (J.P.M.L. 1976) (finding that because all the defendants used the same product, common factual questions concerning the infringement issues were also present). In fact, Rembrandt recently acknowledged that the alleged infringing activity of any specific defendant is not unique. Instead, it is the defendants’ compliance with the industry standards that is accused. *See* Ex. 43 at Ex. C at 5:22-7:9.

Further, the question of damages will present many other common issues of fact among the Actions. Because Rembrandt is not a competitor of the defendants, Rembrandt is expected to seek damages in the form of a reasonable royalties *see, e.g.*, Ex. 42, which involves consideration of multiple factors as set forth in the seminal case of *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff’d*, 446 F.2d 295 (2d Cir. 1971). Because many of these factors relate to the specific patent or patent owner involved in the case, each patent for which Rembrandt seeks damages will present numerous common factual issues. Also, Rembrandt has offered to license the ‘627 patent under reasonable terms and conditions on a non-discriminatory, non-exclusive basis. *See* Ex. 42. Thus, the terms and conditions of any such licenses will be common to all

of the defendants against whom the '627 patent has been asserted. Moreover, because the claims relating to the provision of high speed internet services straddle both Rembrandt I and Rembrandt II actions, because the claims accuse the same equipment, and because seven of the cable service provider defendants have been sued in both the Rembrandt I and Rembrandt II actions, there is a risk that Rembrandt may receive overlapping damages for the same activity at issue in the Rembrandt I and Rembrandt II actions

The Actions all involve common questions of fact; thus, transfer and consolidation would serve the convenience of the parties and witness and would promote the just and efficient conduct of the Actions. Because of these common questions, centralization would eliminate duplicative discovery, prevent inconsistent or repetitive pretrial rulings, and conserve the resources of the parties, their counsel, and the judiciary.

B. Transfer and Consolidation Would Serve the Convenience of the Parties.

There can be no question that consolidation and transfer to a single district would serve the convenience of the parties. The claims relating to the provision of high speed internet and related services accuse the same DOCSIS-compliant equipment—cable modems and related equipment used by the defendants to provide high speed internet service. However, because some of these claims are asserted in the Rembrandt I actions while other, related claims are asserted in the Rembrandt II actions and because many of the cable service provider defendants have been sued in both the Rembrandt I and Rembrandt II actions, it is expected that the cable service provider defendants and the third parties who supply and manufacture the accused equipment will be subjected to burdensome and inefficient discovery as they are forced to respond to overlapping and duplicative discovery requested in the separate actions. For example, in *Rembrandt v. Comcast*, No. 2:05-CV-443 (E.D. Tex.),

Rembrandt has already served subpoenas on over forty (40) third party vendors seeking identical discovery information regarding the accused DOCSIS-compliant devices supplied to the defendants. *See* Ex. 41. Because the defendants in both Rembrandt I and Rembrandt II rely on the same group of vendors and manufacturers to supply them with the accused equipment, it is expected that Rembrandt will pursue the same information from each of the third party vendors in each Action, resulting in unnecessary, duplicative discovery.

Unnecessary, duplicative discovery is exactly what 28 U.S.C. § 1407 was designed to avoid. *In re Multidistrict Litig. Involving Frost Patent*, 316 F. Supp. 977, 979 (J.P.M.L. 1970) (“Section 1407 was intended to provide a procedure which would insure that repetitious and duplicative discovery is avoided by providing that all related actions be assigned to a single judge). Coordination of discovery in this case, however, would eliminate this possibility. It would reduce the burden of both the defendants and plaintiff in pursuing discovery on the many common issues. It will also benefit the third party vendors and manufacturers, who may possess information relevant to each action, by avoiding the possibility of having to engage in identical discovery efforts for each of the fourteen Actions. Thus, it is clear that consolidation and transfer to a single district would serve the convenience of the parties by avoiding costly and unnecessarily duplicative discovery.

C. Transfer and Consolidation Would Promote Just and Efficient Conduct of the Actions.

As Rembrandt recently agreed during a hearing held in the Adelphia matter, transfer and consolidation would also promote just and efficient conduct of the Actions. *See* Ex. 43 at Ex. C at 13:16-13:23. Without consolidation, the Actions would likely proceed in a manner that is contrary to the meaning of judicial economy. If allowed to proceed

separately, these Actions will follow a costly and inefficient path, resulting in wasteful, duplicative discovery and create the potential for inconsistent pretrial rulings. By ordering consolidation, however, the Panel will ensure that the resources of the party and judiciary are used in their most judicious manner, avoiding the potential for conflicting rulings and inconsistent claim constructions.

Under *Markman v. Westview Instruments, Inc.*, it is the obligation of each district court to construe the claims of a patent as a matter of law. 517 U.S. 370, 388-91 (1996). While the prior claim constructions of other courts are relevant and persuasive authority, each district court must make its own judgment as to claim construction. *Texas Instruments, Inc. v. Linear Tech. Corp.*, 182 F. Supp. 2d 580, 589 (E.D. Tex. 2002). Here, given the large number of Actions asserting overlapping, complex patents in at least three different courts, the parties face the untenable prospect of several different claim constructions on identical claim terms. Such varying claim constructions could result in contradictory determinations on the core issues of infringement and invalidity. Consolidation is therefore necessary to ensure uniform application of the patent claims across all the Actions. *See In re Columbia Univ. Patent Litig.*, 313 F. Supp. 2d 1383, 1385 (J.P.M.L. 2004) (“Centralization . . . is necessary in order to . . . prevent inconsistent pretrial rulings, especially with respect to time-consuming and complex matters of claim construction”); *see also In re Mosaid Tech., Inc. Patent Litig.*, 283 F. Supp. 2d 1359, 1360 (J.P.M.L. 2003) (same).

As noted above, Rembrandt’s assertion of so many overlapping patents means that the defendants will all pursue much of the same discovery to elicit facts to support their defenses. For example, all defendants can be expected to pursue documents and depositions supporting the defense of invalidity based on anticipation or obviousness, including

documents and depositions relating to the same prior inventions, prior printed publications, prior commercial sales and prior uses. *See* 35 U.S.C. §§ 102, 103. All defendants are also likely to see discovery relating to the enforceability of the asserted patents, including any inequitable conduct during their prosecution and/or unreasonable prosecution delays, which would result in a finding of prosecution laches. *See, e.g. Symbol Techs., Inc. v. Lemelson Med. Edu. & Research Found., L.P.*, 422 F.3d 1378, 1384-85, *amended on other grounds by* 429 F.3d 1051 (Fed. Cir. 2005). Furthermore, the defendants will also seek the same damages discovery relating to reasonable royalty factors, thereby resulting in duplicative and wasteful discovery efforts. Consolidation and coordination of the Actions for pretrial proceedings would therefore promote the just and efficient conduct of the Actions by avoiding wasteful and duplicative discovery efforts as well as inconsistent pretrial rulings.

Finally, but for the claim of infringement of the '627 patent, all of Rembrandt's infringement claims relate to the provision of high speed internet and related services by virtue of DOCSIS-compliant cable modems and related equipment. By consolidating all of the Actions in one forum, the transferee court will, at its discretion, be able to sever out and consolidate those claims relating to the '627 patent/ATSC standard, while preserving the consolidation of all the actions involving patents implicating the DOCSIS industry standard.

III. THE DISTRICT COURT OF DELAWARE IS THE APPROPRIATE TRANSFeree DISTRICT.

Consolidation and transfer to the District of Delaware, before Judge Gregory M. Sleet, is the most appropriate action. Factors considered by the Panel when selecting a particular transferee forum include: (1) the pendency in that district of a number of the actions; (2) the court's familiarity with the issues; (3) the district or judge's willingness to

accept responsibility for conducting coordinated or consolidated pretrial proceedings; and (4) the favorable status of the civil docket. *In re PharmaStem Therapeutics, Inc. Patent Litig.*, 360 F. Supp. 2d 1362, 1364 (J.P.M.L. 2005) (transfer to judge who was already familiar with the technology involved and who had related cases pending within his district); *In re Mirtazapine Patent Litig.*, 199 F. Supp. 2d 1380, 1381 (J.P.M.L. 2003) (Panel gave weight to the judge's familiarity with the patents at issue, the pendency of 5 of the 6 actions within that district, and the judge's favorable caseload); *In re FMC Corp. Patent Litig.*, 422 F. Supp. 1163, 1165 (J.P.M.L. 1976) (transfer to judge who is more familiar with patents involved and related cases were in a more advanced stage of discovery); *In re Ampicillin Antitrust Litig.*, 315 F. Supp. 317, 319 (J.P.M.L. 1970) (stating that "availability of an experienced and capable judge familiar with the litigation is one of the more important factors in selecting a transferee forum"). The Panel also considers public and judicial policies when determining whether and where to consolidate separate proceedings pursuant to 28 U.S.C. § 1407.

A. Number of Related Cases and Parties Pending in Delaware.

Of the fourteen actions currently at issue, at least six of the actions are currently pending before Judge Sleet in the District of Delaware. In situations where there are actions currently pending in a district, the Panel has expressed "a strong policy favoring the litigation of related claims in the same tribunal." *In re Koratron*, 302 F. Supp. 239, 243 (J.P.M.L. 1969); *see also In re Mirtazapine Patent Litig.*, 199 F. Supp. 2d 1380 (J.P.M.L. 2002); *In re CBS Color Tube Patent Litig.*, 329 F. Supp. 540 (J.P.M.L. 1971). Given the Panel's strong policy favoring transfer to forums where related cases are currently pending and given that a number of the actions are currently proceeding before Judge Sleet in the District of Delaware, transfer and consolidation in the District of Delaware is appropriate.

B. Judge Sleet is Familiar with the Patents.

More importantly, however, Judge Sleet is familiar with and has some understanding of the complex technology at issue in the Actions. The Panel has repeatedly recognized that “the availability of an experienced and capable judge familiar with the litigation is one of the more important factors in selecting a transferee forum” *In re Ampicillin Antitrust Litig.*, 315 F. Supp. 317, 319 (J.P.M.L. 1970). This is especially true when dealing with patent litigation involving complex technologies. *In re PharmaStem Therapeutics, Inc. Patent Litig.*, 360 F. Supp. 2d 1362 (J.P.M.L. 2005) (transfer to district judge who was familiar with technologies involved); *In re Mirtazapine Patent Litig.*, 199 F. Supp. 2d 1380 (J.P.M.L. 2002) (ordering transfer to district judge who is familiar with the underlying issues); *In re Panty Hoe Seaming Patent Litig.*, 402 F. Supp. 1401 (J.P.M.L. 1975) (judge’s familiarity with patents in suit cited as only reason for transfer).

Here, each of the six actions currently pending before Judge Sleet assert claims relating to five of the nine patents at issue the Actions. Moreover, the actions pending before Judge Sleet implicate both of the industry standards at issue—ATSC and DOCSIS. As such, Judge Sleet has the opportunity to gain familiarity with a number of the patents at issue in the Actions. Furthermore, Judge Sleet, having presided over a number of complex patent litigation cases in the past, including a multidistrict litigation matter *see* Ex. 35, has demonstrated an understanding and ability to effectively administer this type of complex patent litigation. In fact, Judge Sleet has already indicated an interest in at least coordinating the six Rembrandt actions pending in Delaware. *See* Ex. 19 at 3-4. Thus, consolidation and transfer before Judge Sleet in the District of Delaware is most appropriate.

C. The Delaware Docket is Less Congested.

Of the three districts in which actions are currently pending, Delaware is the least congested, making it the logical choice for transfer. The Panel often considers the congestion of the proposed docket when determining the appropriate transferee forum pursuant to 28 U.S.C. § 1407. *In re Laughlin Prods., Inc. Patent Litig.*, 240 F. Supp. 2d 1358, 1359 (J.P.M.L. 2003) (transfer to a district that “enjoys general caseload conditions . . . with the present resources to devote time to pretrial matters” is preferable); *In re Compensation of Managerial, Professional & Technical Employees Antitrust Litig.*, 206 F. Supp. 2d 1374 (J.P.M.L. 2002) (transfer to district not already burdened with a complex docket was appropriate). According to the *2005 Annual Report of the Administrative Office of the United States Courts*, the number of civil cases pending in the D. Del. has decreased more than twelve percent from 2005 to 2006. *2005 Annual Report of the Administrative Office of the United States Courts*, Table C.⁶ There has also been a corresponding 17.3% decrease in the number of pending cases in the D. Del. in 2006, dropping from 1,733 cases in 2005 to 1,433 cases in 2006. *Federal Judicial Caseload Statistics*, March 31, 2006, Administrative Office of the United States Courts.⁷ Furthermore, based on the Federal Docket reports, Judge Sleet currently has 64 patent cases pending, demonstrating his familiarity with patent issues.⁸ Overall, it appears that the District of Delaware is less

⁶ The *2005 Annual Report of the Administrative Office of the United States Courts*, Table C provides statistics for the 24-month period ending on March 31, 2006. A copy of which is attached as Exhibit 36.

⁷ A copy of which is attached as Exhibit 37.

⁸ A copy of the docket for all patent cases pending before Judge Sleet is attached as Exhibit 38.

congested than either the E.D. Tex. or the S.D.N.Y.⁹ Thus, it is clear that Judge Sleet in the has the docket, availability and resources necessary to handle this complex patent litigation.

D. Delaware is Home Jurisdiction to Many Defendants.

CoxCom, like most of the defendants involved in the Actions,¹⁰ is incorporated in Delaware. As the home jurisdiction for most of the defendants, the D. Del. would be convenient for parties, witnesses and discovery. CoxCom and the other Delaware corporations would be subject to jurisdiction in Delaware, therefore making venue and jurisdiction proper, eliminating the possibility for expensive and time-consuming motions practice. Accordingly, the D. Del. is an appropriate venue for transfer and consolidation.

E. Policy Considerations Favor Transfer to Delaware.

Policy considerations also support consolidation in the D. Del. The purpose behind 28 U.S.C. § 1407 is “‘to promote the just and efficient conduct’ of multidistrict actions, in part, by ‘eliminating the potential for conflicting contemporaneous rulings by coordinate district and appellate courts.’” *In re Air Crash off Long Island, New York*, 965 F. Supp. 5, 7 (S.D.N.Y. 1997) (quoting *In re Korean Air Lines Disaster*, 829 F.2d 1171, 1179 (D.C. Cir. 1987)). Cases moving forward in many different courts could subject the parties to differing pre-trial judgments and rulings that could affect the final outcomes of the cases. This could

⁹ See the 2006 Federal Judicial Caseload Statistics for the United States District Court for the District of Delaware, Eastern District of Texas and Southern District of New York, attached as Exhibits 37, 39, & 40, respectively.

¹⁰ The following defendants are incorporated in Delaware: Comcast of Plano, LP; Time Warner Cable, Inc.; Charter Communications, Inc.; Charter Communications Operating, LLC; CSC Holdings, Inc.; Cablevision Systems Corp.; CBS Corporation; NBC Universal, Inc.; Fox Entertainment Group, Inc.; Fox Broadcasting Company; Adelphia Communications Corporation; Century-TCI California, LP, Century-TCI California Communications, LP; Century-TCI Distribution Company, LLC; Century-TCI Holdings, LLC; Parnassos Communications, LP; Parnassos Distribution Company I, LLC; Parnassos Distribution Company II, LLC; Parnassos Holdings, LLC; Parnassos, LP; and Western NY Cablevision, LP.

result in inconsistent claim constructions and evidentiary rulings for identical claims, technology, and systems, which is contrary to the very purposes for which the multidistrict transfer and consolidation statute was created. As such, consolidation in Delaware before Judge Sleet, is preferable as it would serve to promote the interests of judicial economy and efficiency for which the statute was created by eliminating the possibility of inconsistent claim construction, pretrial rulings and duplicative discovery.

IV. CONCLUSION

For the foregoing reasons, and the reasons to be stated in any reply brief and any oral argument on this matter, CoxCom respectfully requests that the Panel grant its Motion for Transfer and Consolidation and order that the Actions be consolidated and transferred to United States District Court for the District of Delaware before Judge Sleet for coordinated pretrial proceedings.

Respectfully submitted, this the 9th day of March 2007.



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BEFORE THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

_____)	
In re:)	
)	
Rembrandt Technologies, LP Patent)	MDL Docket No.
Litigation)	
_____)	

**NOTICE OF APPEARANCE OF COUNSEL
REPRESENTING DEFENDANT COXCOM, INC.**

In compliance with Rule 5.2(c), R.P.J.P.M.L., 199 F.R.D. 425, 431 (2001), the following designated attorney is authorized to receive service of all pleadings, notices, orders, and other papers relating to practice before the Judicial Panel on Multidistrict Litigation on behalf of defendant CoxCom, Inc. I am aware that only one attorney can be designated for each party.

Dated: March 9th, 2007.

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BEFORE THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

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In re:)	
)	
Rembrandt Technologies, LP Patent)	MDL Docket No.
Litigation)	
_____)	

CORPORATE DISCLOSURE STATEMENT

Pursuant to Rule 5.3 of the Rules of Procedure of the Judicial Panel for Multidistrict Litigation, Defendant Coxcom, Inc., through its attorneys, declares that Coxcom, Inc. is a wholly owned subsidiary of Cox Enterprises, Inc., a privately owned company.

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BEFORE THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

In re:

Rembrandt Technologies, LP Patent
Litigation

MDL Docket No.

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CERTIFICATE OF SERVICE

I hereby certify that on 9th day of March, 2007, copies of the following documents:

1. Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
2. Memorandum of Law in Support Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
3. Exhibits in Support of Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
4. Notice of Appearance of Counsel;
5. Corporate Disclosure Statement; and
6. Notice of Filing Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407 [for each party's respective case].

were served by U.S. Mail, postage pre-paid, upon the following parties and counsel on the attached Service List.

I further certify that on the 9th day of March, 2007, pursuant to Rule 5.2(b) of the Judicial Panel on Multidistrict Litigation, I caused to be served the following documents by U.S. Mail, postage pre-paid:

1. Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
2. Memorandum of Law in Support Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
3. Exhibits in Support of Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407;
4. Notice of Appearance of Counsel;
5. Corporate Disclosure Statement; and

6. Notice of Filing Motion for Transfer and Consolidation of Rembrandt Technologies Patent Litigation Pursuant to 28 U.S. C §1407 [to District Courts for the following cases:].

U.S. District Court for the Eastern District of Texas

Case No. 02:05-cv-443-TJW; Case No. 02:06-cv-047-TJW; Case No. 02:05-cv-223-TJW;
Case No. 02:06-cv-224-TJW; Case No. 02:06-cv-369-TJW; Case No. 02:06-cv-506-TJW;
Case No. 02:06-cv-507-TJW

U. S. District Court for the District of Delaware

Case No. 1:06-cv-635-GMS; Case No. 1:06-cv-721-GMS; Case No. 1:06-cv-727-GMS;
Case No. 1:06-cv-729-GMS; Case No. 1:06-cv-730-GMS; Case No. 1:06-cv-731-GMS

U. S. District Court for the Southern District of New York

Case No. 1:07-cv-214-WHP

U. S. Bankruptcy Court for the Southern District of New York

Case No. 06-01739-REG

The above documents were filed in electronic format using the CM/ECF system to the following United States District Courts: U.S. District Court for the Eastern District of Texas, Marshall Division; U. S. District Court for the Southern District of New York, Foley Square Division; and U. S. Bankruptcy Court for the Southern District of New York, Manhattan Division.

The above documents were sent in paper format via Federal Express to the Clerk of the Court of for the U. S. District Court for the District of Delaware, Wilmington Division for filing.

This the 9th day of March 2007.



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